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Accounting for Gender Production from a Growth Accounting Framework in Sub-Saharan Africa

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Abstract

This paper draws on an expanded growth accounting framework to estimate the relative contribution of women to growth in Sub-Saharan Africa. Empirical results show a consistently positive contribution of women to growth in gross domestic product in the region, both during economic downturns and growth spurts. This is despite the absence of any valuation of home-produced goods and informal sector production, which accounts for the bulk of women's production, in national product and income accounts. Women's positive contribution is largely attributed to their increased rates of labor force participation in wage employment and the reduction in the gender gap in education in recent years.

This paper is a product of the Gender and Development Unit, Poverty Reduction and Economic Management Network. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at hfofack@worldbank.org.

Accounting for Gender Production from a Growth Accounting Framework in Sub-Saharan Africa[1]

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I Introduction

Despite the numerous steps taken by governments in Sub-Saharan Africa in recent years to foster gender equality and enhance women's economic empowerment,[2] gender inequality remains pervasive in the region. Gender inequality is known to adversely affect growth through both productivity and allocative efficiency channels [World Bank (2012)]. In Sub-Saharan Africa gender inequality has most notably been illustrated by the overrepresentation of women in the informal sector.[3] In practice, this takes the form of differential wage rates, differential access to wage employment and occupational job segregation in the formal economy [Esteve-Volart (2004), Fofack (2012)].

In the predominantly agrarian and primary production system underpinning most African economies, the last two variants of gender inequality have come in the form of gender division of labor in subsistence agriculture and gender bias in the export and resource extraction sectors. While in most other regions of the world, especially in advanced economies, the above forms of gender inequality are primarily attributed to traditional norms and cultural beliefs, the sources of gender inequality in Africa can be classified into two broad categories: the stickiness of traditional norms and resilience of colonial constructs [Akyeampong and Fofack (2012a)].[4]

The literature on gender and development has emphasized the former in Sub-Saharan Africa (hereafter SSA), even though in some countries the resilience of colonial constructs may have reinforced and even enhanced the stickiness of traditional norms [Akyeampong and Fofack (2012a)]. Colonial policies encouraged market over non-market production, and in the process codified the roles of women in societies, confining their contribution in the economic sphere to home production. The emergence of the home production and wage employment dichotomy, as well as the distinction between subsistence agriculture and export crops and resources extraction, are some of the most important characteristics and consequences of the colonial construction which are still visible in the production pattern in SSA.

Traditional norms and colonial constructs, both of which defined the gender production parameters in pre-colonial and colonial times, have persisted into the post-independence era by virtue of their stickiness. Some of these gender norms have nonetheless been subject to changes over time [World Bank (2012), Akyeampong and Fofack (2012b)]. This is most notably illustrated by increased occupational mobility and women's contribution to aggregate output expansion outside the realm of household production, and reduction of educational gender gaps.

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[2] For instance, this commitment has been illustrated by the overwhelming majority of African countries signing up for the UN Convention to Eliminate All Forms of Discrimination against women. All but two African countries have ratified the convention and the majority have fully endorsed article 16.

[3] According to existing data, the majority of economically active women in Sub-Saharan Africa are engaged in the informal sector. For instance the informal sector accounts for over 95 percent of women workers outside agriculture in Benin, Chad and Mali [Charmes (1998)].

[4] A number of authors have established a correlation between changing gender roles and the spread of Christianity. For instance, Stark (1996) attributes the contrast between Western Europe and Eurasia on women's empowerment to the more gender-inclusive approach adopted by Christian missionaries in Western Europe.

This paper draws on an expanded growth accounting framework to estimate the relative contribution of women to growth in SSA over the last few decades. To our knowledge, this is the first empirical analysis which attempts to quantify the relative contribution of women to growth in SSA from a growth accounting framework. Although the gender equality argument is predicated on the assumption that women's economic empowerment is good for economic development, neither the scale of their relative contribution to growth nor the dynamics of change in that relative contribution are known. Rather, most empirical studies on gender and growth have focused on the identification of gender-related determinants of growth [Dollar and Gatti (1999), Balliamoune-Lutz and McGillivray (2009)].[5]

Empirical results show that the relative contribution of women to growth in the region is positive, both during economic downturns and growth spurts. Women's total contribution to aggregate growth exceeds one full percentage point in several countries. The positive contribution is largely attributed to the increased labor force participation rate of women and productivity enhancement through human capital accumulation, especially following the narrowing of educational gender gap. Five-year trending estimated averages show that the relative contribution remains positive from the period of large output contraction in the 1980s to the post-HIPC growth rebounds.

Empirical results also highlight important variations across countries, with statistically significant colonial effects. On average the contribution of women to growth is higher in former British colonies than among former French colonies. However, the stronger performance of English-speaking countries is achieved at the crest of a rapid reduction in the educational gender gap and a much stronger and robust economic growth, suggesting that a reverse causality may also be at play (whereby the process of loosening traditional norms and colonial constructs may also be partly driven by changes along the growth path).

At the same time, attempts to take women's contribution to growth and economic development fully into account may be constrained by measurement problems, particularly the absence of valuation of home-produced goods and informal sector production, though this is not specific to SSA.[6] Despite the changing nature of traditional norms and colonial constructs, the bulk of women's contribution to growth in the region remains in home and informal sector production, which are not always fully accounted for in national income and product accounts. As such average contributions of women to growth from the framework may be underestimated [Landefeld and McCulla (2000)].[7]

The rest of the paper is organized as follows. Section 2 provides an overview of gender inequality and growth dynamics in the region, with emphasis on colonial constructs and social norms which shaped gender production in Sub-Saharan Africa. Section 3 proposes a gender-based growth accounting framework for estimating the relative contribution of women to growth. Section 4 discusses empirical results and main findings. Section 5 concludes and discusses policy implications.

[5] For instance, see Balliamoune-Lutz and McGillivray for empirical evidence on the nature of the relationship between gender inequalities in human development (education and literacy) and growth in SSA.
[6] India is one of the few countries which have attempted to account for informal sector production in estimating national income and product accounts in the developing world.
[7] The informal sector could account for 78% of non-agricultural employment in SSA [Charmes (1998)].

II Dynamics of gender and growth

This section provides a brief empirical analysis of the dynamic interaction between gender inequality and growth in SSA. The review emphasizes social norms and cultural beliefs, sources of persistent educational gender gap and occupational job segregation which have resulted in lower female labor force participation rates and persistent gender wage gaps in the formal labor market [Lagerlof (2003), World Bank (2006, 2012)].[8] Social norms and cultural beliefs shape individual expectations and preferences, as well as household utility, and are largely responsible for the generally accepted view that men should engage in paid market work, while the sphere of women's activity is largely confined to unpaid home production.

This codification of gender roles is not specific to SSA. It is common across all societies, in both developed and developing countries, and has been characterized as the *traditional* view of gender roles [Farré and Vella (2007)]. [9] Nevertheless, in contrast to the more advanced economies, gender role attitudes were also shaped by colonial constructs in the developing world.[10] In the African context, this reinforced the sexual division of labor between paid and unpaid labor, with women confined to unpaid subsistence agriculture and home production, and men specialized in the production of export crops and resource extraction—the main drivers of the colonial economy [Akyeampong and Fofack (2012a), Fofack (2012)].

In what follows we first assess empirically the interaction between gender inequality and growth through the education link. However, before any data analysis, it is important to highlight one of the critical channels through which social norms may adversely affect women's contribution to growth: the co-dependent relationship between prevalent social norms and educational gender gaps. Whereas the educational segregation is known as one of the direct causes of occupational job segregation, it is also the case that persistent educational gender gaps are maintained across generations by sustained expectations of lower returns to female education.

In poverty-stricken societies facing budget constraint the impact of social norms on a family's decision to allocate limited resources to human capital development is strong and even more significant for persistent gender inequality. For instance, to the extent that household preferences

[8] In general, social norms and cultural beliefs may be viewed as a set of rules and hierarchy sustained by power asymmetries (implicitly or explicitly) that are commonly accepted as part of a natural order in a given society and restrict the mobility of women as well as their expectations and aspirations.

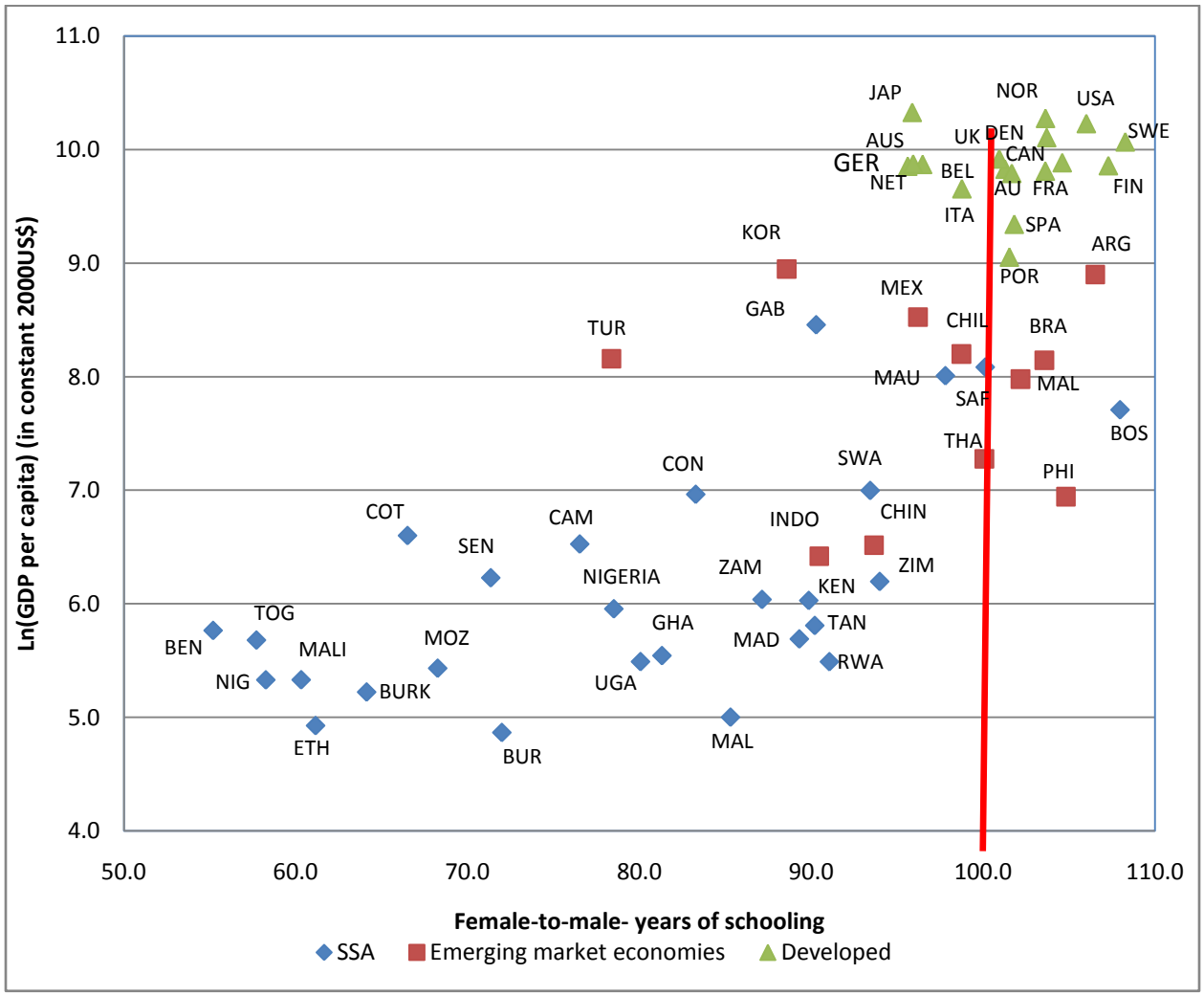
[9] In most societies, the traditional view of gender roles is also shaped by religious beliefs and practices [Landes (1999), Lagerlof (2003)]. Landes (1999) contrasts religious beliefs in the Protestant and Catholic churches and finds that while women were catechized in the Catholic environment, they were not allowed to read. In contrast Protestant missionaries promoted gender equality and the importance of girl's literacy and education. Akyeampong and Fofack (2012a) provide a review of the critical role played by Christian missionaries in the prohibition of girls' education in Africa during the colonial period.

[10] Colonial constructs encompass a set of policies and institutions established by the imperial power and implemented by the colonial administration to shape societies and effectively change the behavior of those who are colonized with a view of permanently achieving certain economic gains or perpetuating a dependency relationship. The underlying changes, which include the accepted view that women should have a subordinate role in society or that Africa's exports should be limited to raw materials, had long-term consequences often referred to as colonial legacies.

regarding children education are influenced by expected returns to education, the exclusion of women from the labor market may act as a disincentive for girls' education. Under such settings of commonly shared inegalitarian beliefs restricting women's participation to the formal labor market, parents' preference for boys' education may emerge as a perfectly rational choice, at least from the standpoint of household utility.

Figure 1 below shows cross-country plots of per capita GDP (in logarithms, US dollars and 2000 prices) and the ratio of female-to-male years of schooling. Country income and years of schooling are averages over the last four decades spanning the years 1970-2010. Averages are estimated for a sample of 55 countries, including 27 SSA countries, 11 emerging market economies and 17 advanced economies. This configuration allows for a contrasting analysis along the stage of development, although point estimates which are the basis for inference here do not provide the means for assessing the potential effects of loosening social norms and cultural beliefs on development outcomes.

Figure 1: Cross-country plots human capital endowment and growth (1970-2010)



The figure highlights a positive association between the reduction of educational gender gap and economic development. Countries approaching the gender parity index also enjoy high per capita income. In essence, this is illustrated by the clustering of high-income countries plots (green triangles) around the ratio of 100 on the *x-axis* (corresponding to gender parity for years of schooling). Similarly, most emerging market economies (red squares) are concentrated around the gender parity ratio, although their concentration index is lower. The cross-country standard deviation from the gender parity ratio is much higher for the latter set of countries: 29 against 17 for the high-income countries.

In contrast to advanced and emerging market economies which disproportionately fall in the upper right quadrant of the distribution, the overwhelming majority of SSA countries are located in the lower left quadrant of Figure 1 (corresponding to the locus of high educational gender gap and low per capita income).[11] However, in the midst of that high concentration of countries at the intersection of high educational gender gap and poverty rates are a few exceptions: South Africa, Mauritius and Botswana. The plot associated with Botswana is located in the right side of the dividing line, suggesting that on average women have been staying in school longer than men.[12]

The data analysis also establishes a positive association between reduction of the gender gap in education and economic development in other regions of the world. The regions which have achieved the strongest and fastest economic growth rates are also those which have recorded a rapid reduction in educational gender gap. This is particularly the case for the East Asia region where the impressive growth in per capita income between 1970 and 2010 was accompanied by a significant increase in the number of years of schooling for females and males, and about 90% reduction of the gender gap in education over the same period (see Table 1 in the Annex and Figure 1 in the Annex). [13]

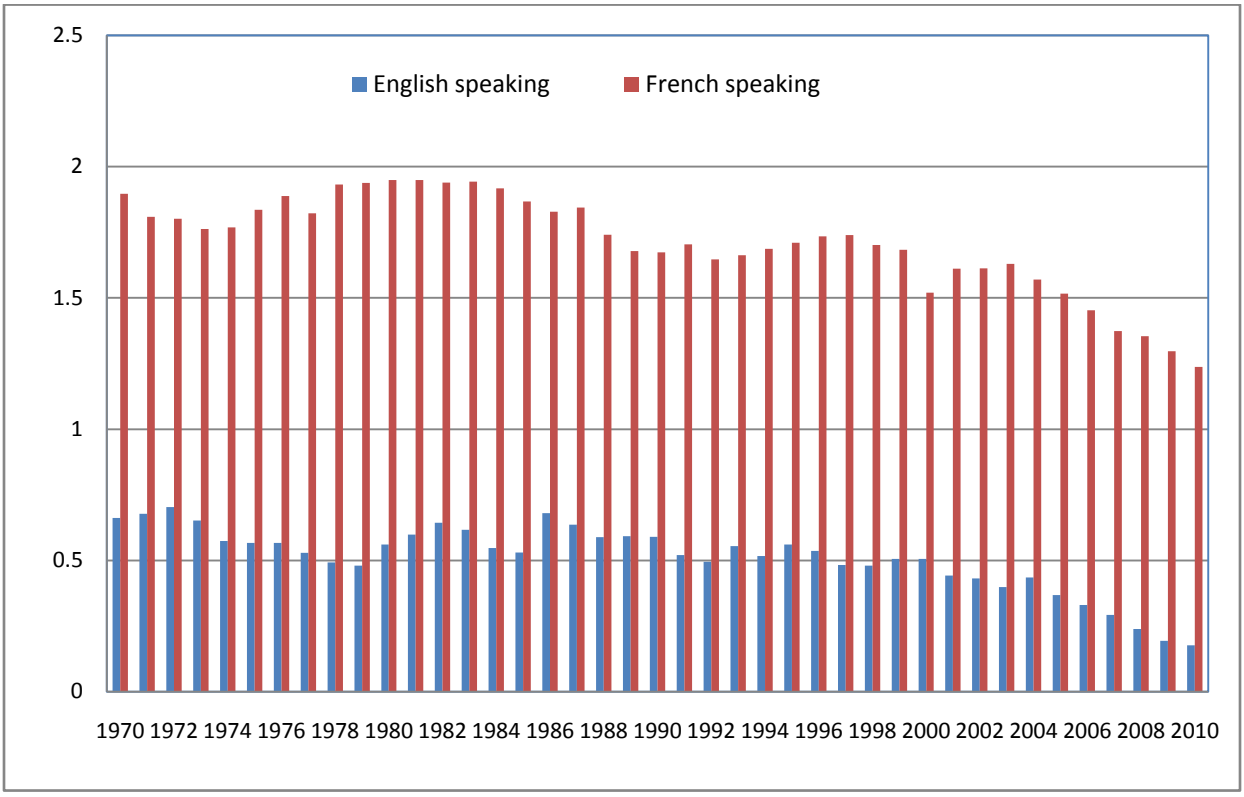
The positive association between growth and the reduction of education gender gap is also consistent in SSA when countries are grouped along one of their key colonial heritages—language. The much higher per capita income growth enjoyed by English-speaking countries between 1970 and 2010 has equally been accompanied by a significant increase in the number of years of schooling for both girls and boys and a significant reduction in education gender gap over the same period. To illustrate, the 112% increase in per capita income between 1970 and 2010 was accompanied by over 90% reduction of the education gender gap over the same period (see Table 1 in the Annex).

Similarly, the lower economic growth rate achieved by the subset of French-speaking countries over the same period has been accompanied by a proportionally smaller improvement in human capital. That improvement occurred in the context of persistently large gender gaps in education. For instance, the 20% increase in per capita income registered by that subset of countries between 1970 and 2010 was accompanied by only about 30% reduction in the education gender gap (in contrast to 90% for the subset of English-speaking countries) over the same period (see Table 1 in the Annex).

[11] Most countries under that quadrant are among the poorest in the world. For instance, according to the latest UN Human Development Report, Niger is ranked 167th out of 169 on the composite Human Development index (HDI).
[12] Botswana is clearly an outlier: it achieved gender parity in 1970, when female enrollment rates were rather low in the overwhelming majority of countries in the region.
[13] Figure 1 in Annex contrasts the long-term trend in educational gender gaps between the SSA and East Asia regions.

This marginal improvement resulted in a widening educational gender gap with the subset of former British colonies where the gains achieved by women have been more substantial (see Figure 2 below).

Figure 2: Trend in gap between male and female years of schooling



The relatively poor performance achieved by French-speaking countries had direct consequences for female labor force participation rates. Although the long-term trend of labor force participation between men and women suggests a narrowing gap across the board, the gap between English and French-speaking countries remains significant and has even widened in recent years (see Figure 2 in the Annex). In part, this probably reflects the persistent effects of educational segregation on employment and its long-term effects for occupational job segregation, assuming that social norms and cultural beliefs are not markedly different across the two subsets of countries.

The widening gender gap between former French and English colonies may also be attributed to potential endogeneity whereby the level of economic development affects the extent of gender inequality. In this regard the rapid reduction of the education gender gap in the former English colonies may be largely attributed to their superior economic performance. Yet, numerous empirical studies which control for endogeneity support evidence of a positive relationship between the reduction of educational gender gap and growth [Klasen (1999), Knowles et al. (2002), Balliamoune-Lutz and McGillivray (2009)]. A few examples are the work of Klasen (1999), Dollar and Gatti

(1999) who found that educational gender gaps have a direct and negative impact on economic growth.[14]

The transmission channels from the education gender gap to growth are expected to vary along the stages of development and across countries. According to Barro and Lee (1996), the growth impact of female education is transmitted through its negative effect on fertility. Under the hypothesis of reduced fertility rate, the quantity-quality substitution in reproductive outcomes attained as a result of increased life expectancy improves female time use and time allocation, and hence their contribution to growth. At the same time, an increase in female human capital endowment may also enhance the growth process through the productivity channel [Hill and King (1995)].

Still, the correlation which has been the basis for inference in this section does not imply causation. While skill improvements through the reduction of educational gender gap may increase female labor force participation rates and growth under loosening social norms (either through productivity channels, fertility channels or both), the level of economic development may also affect gender equality, and specifically, the educational gender gap. Illustrating that dependency structure, longitudinal data and cross-country analysis have suggested a U-shaped relationship between female labor supply and economic development [Goldin (1995)].

The narrowing gender gap in education and increasing female labor force participation rates, especially in the rapidly growing economies of the region, may therefore be attributed to two concurrent factors: growth effects and loosening social norms and cultural beliefs over time.[15] In a dynamic setting of rapidly changing institutions, gender inequality should not expect to be constant over time or across countries. The expected contribution of women to growth in the region should therefore be positive and increase over time. The next sections draw on a growth accounting framework to estimate the relative contribution of women to growth over the last three decades.

III Analytical framework

Standard growth accounting frameworks make it possible to decompose the change in output into the contribution of factors accumulation (generally labor and capital) and a residual measure of efficiency gains associated with the use of factor inputs.[16] The residual measure of efficiency is commonly known as total factor productivity, as it accounts for the portion of output that is not fully explained by used factor inputs. In practice, the application of these growth accounting frameworks

[14] Similarly, from a neoclassical growth model that includes female and male enrollment rates, Knowles et al. (2002) find that the gender gap in education is a barrier to economic development. And Using Arellano-Bond estimations, Balliamoune-Lutz and McGillivray (2009) find that gender inequalities in literacy have a statistically significant and negative effect on growth in SSA.

[15] In addition to the reduction of educational gender gaps and increased female labor force participation rates, other observable measures of reduction of gender inequality in the region include an increase in female life expectancy rates and reduction of gender wage differentials.

[16] Growth accounts may also be viewed as a byproduct of the basic national accounting identity which relates the aggregate value of the final goods and services produced in a country (gross national product) to the total value of capital and labor used to produce the output (gross domestic income).

has been based on standard Cobb-Douglas two-factor production functions which assume that output growth is exclusively explained by capital and labor as follows:

$$Y_t = A_t K_t^{\alpha} L_t^{1-\alpha} \tag{1}$$

Under this standard representation, Y_t is the aggregate output, A_t is total factor productivity (TFP), K_t is capital input, L_t is labor input. The coefficient α is the elasticity of output with respect to the capital input and $(1-\alpha)$ is the labor's share of income. Increasingly, attempts are made to infer from growth accounting frameworks on the basis of expanded versions of standard Cobb-Douglas production functions. The expansion of these production functions is carried out either to account for other relevant factor inputs or to decompose existing ones to take into account the quality and sources of labor, demographic factors, or other drivers of capital accumulation [Collins and Bosworth (1996), Madsen and Ang (2009)].

Although this paper is in line with recent attempts to account for other sources of growth from growth accounting, the underpinning framework emphasizes gender production, reflecting the fact that the paper is primarily interested in quantifying the relative contribution of women to economic growth. At the same time, the productivity of labor is affected by labor quality and other productivity enhancing factors such as infrastructure, level of education and qualitative skills. In order to account for this complexity of the growth process, the present section builds on the framework proposed by Mankiw et al. (1992). More specifically, the operating framework is specified as follows:

$$Y_t = A_t K_t^{\alpha} T_{t,f}^{\beta} T_{t,m}^{\delta} H_{t,m}^{\theta} H_{t,f}^{1-(\alpha+\beta+\delta+\theta)} \tag{2}$$

$$= A_t K_t^{\alpha} T_{t,f}^{\beta} T_{t,m}^{\delta} H_{t,m}^{\theta} H_{t,f}^{1-\vartheta} \tag{3}$$

where $\vartheta = (\alpha + \beta + \delta + \theta)$. The main difference with most existing frameworks [Mankiw et al. (1992), Collins and Bosworth (1996)] is the inclusion of gender differentiated land ownership and quality adjusted labor differentiated on the basis of gender. In this line, the additional factor inputs $H_{t,m}, H_{t,f}$ are quality-adjusted male and female labor, respectively. Similarly the variables $T_{t,m}, T_{t,f}$ are shares of productive land owned by men and women, respectively at time *t*. These additional factors of production are introduced to account for possible changes in land ownership and labor quality over time.

The inclusion of land in the production function is consistent with Africa's production parameters in recent years—land and labor surplus [Fofack (2012)].[17] Aggregate output in these economies continues to be overwhelmingly dominated by agricultural production, especially in rural areas; as such it is contingent upon household's ownership of or access to land. Furthermore, despite the fact that the distribution of land ownership continues to be heavily skewed in favor of men – reflecting the persistent gender bias— steps have been taken by a number of governments in recent years to equalize the distribution of bequests across gender [World Bank (2012)].

[17] While land surplus is the rule in Africa during pre-colonial and colonial times, rising life expectancy and rapid population growth have resulted in significant increase in labor force participation in recent years.

One of the limitations of the proposed framework is the assumption that capital accumulation is gender neutral. Although private capital accumulation is not, the lack of consistent data on capital stock accruing to male and female entrepreneurs makes it difficult effectively to disaggregate private capital ownership by gender. In the absence of such time series, the total gross capital formation is not disaggregated into public and private components. Instead the single coefficient (α) is assigned to K_t in the production function. The coefficient α is defined as above—elasticity of output with respect to capital input.

The coefficient β is the elasticity of output with respect to female-owned land input. A variant of the model with $(\beta = 0)$ would correspond to an extreme case where women are not allowed to own land. Similarly, δ is the elasticity of output with respect to the male-owned land input. The coefficient θ is the elasticity of output with respect to male quality adjusted labor. Under this specification, the production function exhibits constant returns to scale in $T_{t,f}$, $T_{t,m}$, $H_{t,f}$, $H_{t,m}$, holding TFP constant. However, there are increasing returns to scale in K_t, $T_{t,f}$, $T_{t,m}$, $H_{t,f}$, $H_{t,m}$ and A_t altogether.

Following Madsen and Ang (2009), the quality adjusted labor input consists of human capital per worker (h_t), estimated annual hours worked (X_t) and raw labor (L_t) as follows:[18]

$$H_f = h_f X_f L_f \tag{4}$$

$$H_m = h_m X_m L_m \tag{5}$$

where each gender-related human capital per worker is specified as follows:[19]

$$h_f = \exp\,(\Psi_f e_f) \tag{6}$$

$$h_m = \exp\,(\Psi_m e_m) \tag{7}$$

The variables e_f, e_m are educational attainment among the females and males working age population, respectively. These variables are defined as the average years of schooling. The parameters Ψ_f and Ψ_m are the returns to schooling for female and male population, respectively. While Ψ is generally set at 0.07 in the standard literature (see Jones (2002)), simulations assigning different values to $\Psi(\cdot)$ could enable one to ascertain the extent to which an hypothesized gender bias in returns to schooling could affect the overall contribution of quality adjusted labor to growth under the proposed framework.[20]

Using equations (4), (5), (6) and (7) equation (3) can be rewritten as follows:

$$Y_t = A_t K_t^{\alpha} T_{t,f}^{\beta} T_{t,m}^{\delta} (h_{t,m} X_{t,m} L_{t,m})^{\theta}\,(h_{t,f} X_{t,f} L_{t,f})^{1-\vartheta} \tag{8}$$

[18] Raw labor (L_t) may also be viewed as population pressure.
[19] This specification of human capital per worker is in line with the Mincerian approach.
[20] In the past, the inter-temporal optimization of household human capital investment decisions in a context of budget and credit constraints have been guided by an implied higher expected returns to schooling in the labor market for boys.

Expressing Y_t in terms of output per working age person, equation (8) above can be rewritten as a function of the following individual components:

$$Y_t/L_t = A_t \left(\frac{K_t}{L_t}\right)^{\alpha} T_{t,f}^{\beta} T_{t,m}^{\delta} \left(h_{t,m} X_{t,m} L_{t,m}\right)^{\theta} \left(h_{t,f} X_{t,f} L_{t,f}\right)^{1-\vartheta} L_t^{\alpha-1} \tag{9}$$

Taking log and differentiating equation (9) yields the growth rate of labor productivity expressed as a linear combination of growth rates of various factor inputs as follows:

$$gr(Y_t/L_t) = gr(A_t) + \alpha.gr(K_t\ /L_t) + \beta.gr(T_{t,f}) + \delta.gr(T_{t,m}) + \theta.gr(h_{t,m}) + \theta.gr(X_{t,m}) + \theta.gr(L_{t,m}) + (1-\vartheta).gr(h_{t,f}) + (1-\vartheta).gr(X_{t,f}) + (1-\vartheta).gr(L_{t,f}) + (\alpha-1).gr(L_t) \tag{10}$$

where $gr(A_t)$ is the knowledge growth rate; $gr(K_t\ /L_t)$ is the growth rate of capital-labor ratio; $gr(T_{t,m})$ and $gr(T_{t,f})$ are the growth rates of land owned by men and women, respectively; $gr(h_{t,m})$ and $gr(h_{t,f})$ are the growth rates of human capital per male and female workers, respectively; $gr(X_{t,m})$ and $gr(X_{t,f})$ are the growth rates of annual hours worked by male and female workers, respectively; $gr(L_{t,m})$ and $gr(L_{t,f})$ are growth rates of male and female labor, respectively and $gr(L_t)$ is the growth rate of raw labor.

With $(0 < \alpha < 1)$, the coefficient $(\alpha - 1)$ associated with raw labor is always negative, suggesting that labor productivity growth is adversely affected by growth of raw labor—population pressure from excess population growth. In part this is due to the fact that land, which remains one of the key drivers of production especially in rural areas, is inelastic in supply. And in a highly agrarian economy which does not enjoy the multiplier effects created by manufacturing industries, the growth process is extensive, requiring additional inputs for aggregate output expansion. However, as the population increases, the expected increase in the cost of land may operate as a constraint to access and result in reduced per capita output.

Human capital is treated as an exogenous variable under the present framework, reflecting the fact that education is determined by expected productivity growth. Although output per capita and output per hour worked are expected to be identical along the balanced growth path, labor force participation and age dependency rates have changed dramatically in the region over the last few decades, owing in a large part to rural-to-urban migration and high population growth rate—population pressure. In order to account for these demographic changes, it is useful to decompose per capita output as follows:

$$\frac{Y_t}{POP_t} \equiv \frac{Y_t}{L_t} \cdot \frac{L_t}{WP_t} \cdot \frac{WP_t}{POP_t} \tag{11}$$

where POP_t is the total population size in any given country at time t and WP_t is the working age population at time t. Taking the log and differentiating equation (11) yields the per capita growth rates as follows:

$$gr\left(\frac{Y_t}{POP_t}\right) = gr\left(\frac{Y_t}{L_t}\right) + gr\left(\frac{L_t}{WP_t}\right) + gr\left(\frac{WP_t}{POP_t}\right) \quad (12)$$

According to equation (12), per capita income growth is the sum of the labor productivity growth rate, growth in the labor force participation rate, and growth in the fraction of the population of working age. Substituting equation (12) in equation (10) yields the growth rate of per capita income represented by equation (13) below:

$$gr(Y_t/POP_t) = gr(A_t) + \alpha.gr(K_t\ /L_t) + \beta.gr(T_{t,f}) + \delta.gr(T_{t,m}) + \theta.gr(h_{t,m}) + \theta.gr(X_{t,m}) + \theta.gr(L_{t,m}) + (1-\vartheta).gr(h_{t,f}) + (1-\vartheta).gr(X_{t,f}) + (1-\vartheta).gr(L_{t,f}) + (\alpha-1).gr(L_t) + gr\left(\frac{L_t}{WP_t}\right) + gr\left(\frac{WP_t}{POP_t}\right) \quad (13)$$

Equation (13) provides the basis for inferring the relative contribution of women to economic growth from the growth accounting framework. The initial parameter values in the baseline scenario are selected to be consistent with the production structure of most African economies. For instance the elasticity of output with respect to the male-owned land input (δ) is defined such that $\delta = 0.8 *$ the share of agricultural value added expressed in GDP. Similarly, this choice reflects the fact that the distribution of land continues to be biased against women. The base case scenario assumes that ($\Psi_f = \Psi_m = 0.07$) and that the contribution of capital is gender neutral.

IV Data and empirical results

Except in a few cases (annual hours worked (X_t) and capital stock (K_t)), most data are obtained from the World Bank's World Development Indicators database. Data on annual hours worked are very difficult to obtain even for OECD countries, and are not available for countries in SSA. For all practical purposes, we assume that the hours worked variable is time-invariant and gender-neutral($X_{t,f} = X_{t,m}$), even though women tend to put in longer hours than men in most countries and societies [Boserup (1970)]. Understandably this hypothesis imposed by data limitations is likely to result in an underestimation of the relative contribution of women to growth.[21] National product and income accounts generally do not report a series for the capital stock (K_t). This variable is constructed using a perpetual inventory method as follows:

$$K_{t+1} = (1-\rho)K_t + I_t,$$

where ρ is the constant depreciation rate of capital and I_t is real investment. The perpetual inventory method requires data on real investment, a value of ρ and a value for the initial stock of capital(K_0). In the absence of estimates of capital stock for most countries in the region, the initial stock of capital is taken as zero.[22] This base value assigned to the initial stock of capital will not markedly affect the

[21] However, the large fraction of long hours of work invested by women is not necessarily captured in national account estimates, as they largely fall in the realm of informal sector and home production.

[22]The initial stock of capital could also have been chosen such that the capital output ratio in the initial period equals the average capital output ratio over the reference period. However, this would have required data on the initial capital stock.

results, however. As specified in equation (13), the variables are defined in terms of growth rates and not levels. The value of ρ is taken as 0.15. This depreciation rate is consistent with practice in the literature and reflects the fact that low-income countries which face higher budget constraints tend to allocate lower revenues to the maintenance of the capital stock [Bayraktar and Fofack (2011)].

Under the base case scenario, capital's production share (α) is assumed constant at ($\alpha = 0.3$). Young (2003) fixes ($\alpha = 0.5$) for Asian emerging market economies. However, unlike most countries in SSA, Asian EME have entered a highly capital-intensive growth regime, increasingly illustrated by the growing manufactured content of their exports [Nelson and Pack (1999)]. Hence a lower value of capital's production share is assigned to SSA countries in the base case. Nonetheless, alternative values of α are considered in the simulations: ($\alpha = 0.2$) to reflect the poverty-stricken countries at the lower end of capital intensity, and ($\alpha = 0.5$) for the alternative set of countries.

The latter ($\alpha = 0.5$) is still on the high side for SSA countries. In effect, under this hypothetical higher capital intensive scenario capital accumulation emerges as the major contribution to growth. For instance, during the growth rebound enjoyed by Uganda in the second half of the 1990s—when average growth was about 4.5%—capital accumulation accounts for 79% of aggregate growth when $\alpha = 0.5$. However, when $\alpha = 0.3$, capital accumulation accounts for only 47% of aggregate growth over the same growth spurts and under the same modeling assumptions.

The contribution of land to growth (β) is estimated as the share of agricultural value added in GDP(S_t). To account for gender bias in the distribution of land, the base case scenario assumes that ($\beta_t = a_f S_t$) and ($\delta_t = a_m S_t$) such that ($a_f \leq a_m$), (0< a_f < 1) and ($a_f + a_m = 1$), where a_m and a_f are the total share of land owned by men and women, respectively.[23] In the base case scenario, which assumes entrenched gender bias, ($a_f = 0.2$) and ($a_m = 0.8$).[24] Under the hypothetical equalization of access to land and ownership of real estate assets across gender, these coefficients are taken equal ($a_f = a_m = 0.5$).

Finally the parameter associated with male human capital (θ) is derived as a residual as $\left(\theta = 0.5 * 1 - \alpha - \beta - \delta\right.$. While the base case scenario initially assumes no gender bias in human capital, baseline values of θ and ϑ are allowed to vary over time to reflect the divergence from the hypothesized gender parity in enrollment rates and schooling in the majority of countries in the region. Once the data for the series are collected and the parameter values are carefully chosen, total factor productivity (TFP) is calculated as a residual, as follows:

$$A_t = \frac{Y_t}{T_{t,f}^{\beta} T_{t,m}^{\delta} H_{t,m}^{\theta} H_{t,f}^{1-\vartheta} K_t^{\alpha}}$$

[23] Although joint land titling may be a growing phenomenon for modern couples in urban areas where educated women enjoy increasingly stronger bargaining power, the framework adopted in this paper assumed single land titling and ownership which remains the norm in the region.

[24] The assumption on the distribution of land across gender is consistent with customary laws and prevailing inheritance practices in the majority of countries.

Based on equation (13), Table 2 in the Annex decomposes per capita GDP growth rates into their different components for all countries in the sample (including 12 English-speaking and 12 French-speaking countries). All figures are annualized growth rates averaged over a five-year consecutive disjoint time period covering three decades spanning the years 1980-2010. The time frame is dictated by the availability of data. However, it also includes two contrasting growth episodes: the 1980-1995 period; and the post-HIPC, especially the period running from 1995 up to the global economic downturn in 2008.

While the earlier period has been characterized as the "*economic tragedy of the 20th century*" in reference to the significant human and social costs associated with sustained economic contraction in the region (see Easterly and Levine (1997), Artadi and Sala-i-Martin (2003)), the latter period has been singled out as one of exceptional growth [Kasekende et al. (2010), Devarajan and Shetty (2010)]. This contrasting growth picture over the reference period enables one to assess the relative contribution of women to growth during growth spurts as well as economic downturns.

Per capita GDP growth rates are actual growth rates. They are consistent with the poor performance of most countries in the region in the 1980s and the first half of the 1990s. For most countries, output contraction is associated with negative TFP during the 1980s downturn. Reflecting the TFP effect on growth, the income growth enjoyed by countries in the second half of the 1990s is equally associated with positive TFP. In particular, the 4.5% growth rate enjoyed by post-conflict Uganda in the aftermath of the civil war is largely the result of impressive TFP growth. TFP accounted for nearly 60% of the total GDP growth (see Table 2 in the Annex).

TFP also accounts for a large contribution to growth in post-conflict Rwanda in the late 1990s. Even when annualized growth rates are estimated over the entire reference period (1980-2010), the TFP contribution remains strong, emerging as the largest individual growth component. This result is consistent with most empirical findings which show that TFP have accounted for the largest contribution to growth in both advanced and developing countries in recent years [World Bank (2005)].[25] However, in the African setting of low-technological endowment, the intensity of factors utilization rather than technological change and increased technical efficiency may account for the large part of the TFP contribution to aggregate growth.

The contribution of non-TFP induced capital deepening is also positive and growth-enhancing, especially in the few countries which enjoy robust growth over the reference period. In particular, capital accounts for a disproportionately large share of growth in Mozambique and Swaziland (see Table 2 in the Annex). However, in the midst of that positive contribution of capital to growth, there is a large variation across countries, from 3.4 percentage points (accounting for a significant share of total growth) in Mozambique to negative 2.3 percentage points in Zimbabwe (corresponding to a major drag on per capita growth).[26]

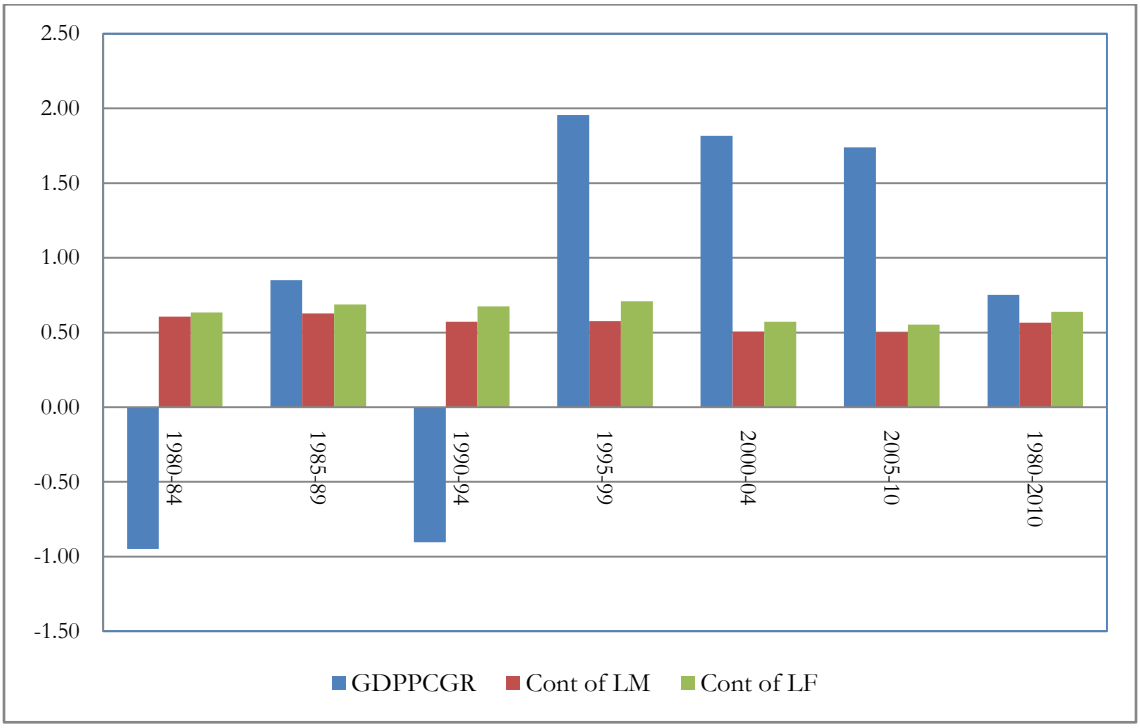
[25] For instance, World Bank calculations indicate that technological change explained one third of the increase in per capita income in East Asia up to the early 1990s.

[26] The rather low growth performance achieved by Mozambique despite the large contribution of capital is in part due to excess population growth, a major drag on growth and poor technological endowment illustrated by negative TFP.

The negative contribution of capital to growth in Zimbabwe may reflect capital decay in recent years. More than excess population growth, the deterioration of capital stock has clearly been a major drag on growth in Zimbabwe over the last decade. Since the turn of the millennium, TFP growth has been negative, contributing to a reduction of growth by more than two full percentage points. However, the overall contribution of TFP to growth over the reference period remains positive, owning in large part to investments which increased the intensity of factors utilization and efficiency gains accumulated in the pre-crisis years.

In contrast to TFP and capital deepening which both exhibit a large variance in their relative contribution to growth, population growth (measured by raw labor) is a consistent drag on the economy. Regardless of the country and growth regimes, its contribution to growth is negative. It also has the largest negative contribution to per-capita growth, with adverse effects on growth exceeding two full percentage points in many countries. The magnitude reflects both labor surplus and more importantly, the deficit of technology and infrastructure which are essential for enhancing the productivity of labor.

Figure 3 – Baseline case: Contributions of male and female labor force to growth



Although land, human capital and labor force participation are growth-enhancing, irrespective of the reference period, female labor force participation exhibits a large relative contribution to growth. On average, it accounts for over 0.66 percentage point of growth during the period 1980-2010. This figure represents approximately 0.64 out of 0.75 aggregate per capita GDP growth averaged over the period. On the other hand, the contribution of male labor force participation to growth, although positive, has been much lower, at about half a percentage point of growth, which accounts for about 0.56 out of 0.75 total growth (see Figure 3 above).

The positive contribution of female and male labor force participation to growth in the midst of negative aggregate growth (for instance, during output contraction in the 1980s) is expected. It reflects the fact that the negative contribution of other right-hand side variables in the model is significant and large enough to offset the positive contribution of capital and labor force participation, as well as other growth-enhancing variables such as human capital endowment and land. This is particularly the case for raw labor, one of the variables which show a significant and adverse effect on growth. On average this variable has lowered growth estimates by over 2 percentage points in a number of countries.

The positive and relatively high contribution of female labor force participation to growth from the decomposition of aggregate growth is consistent throughout the reference period, even during economic downturns and sustained output contraction in the 1980s (see Figure 3 above). In contrast and although consistently positive as well, the contribution of human capital endowment to growth is lower, especially during output contraction in the 1980s (see Panel A of Figure 3 in the Annex).

Despite the relative increase in the post-HIPC the contribution of human capital endowment to growth remains lower than the share associated with labor force participation. However, in contrast to the gender gap associated with the distribution of labor force participation where women account for a relatively larger share of growth, the relative contribution of male and female human capital endowment to growth is not markedly different, even when the model hypothetically assumes higher returns to education for men.

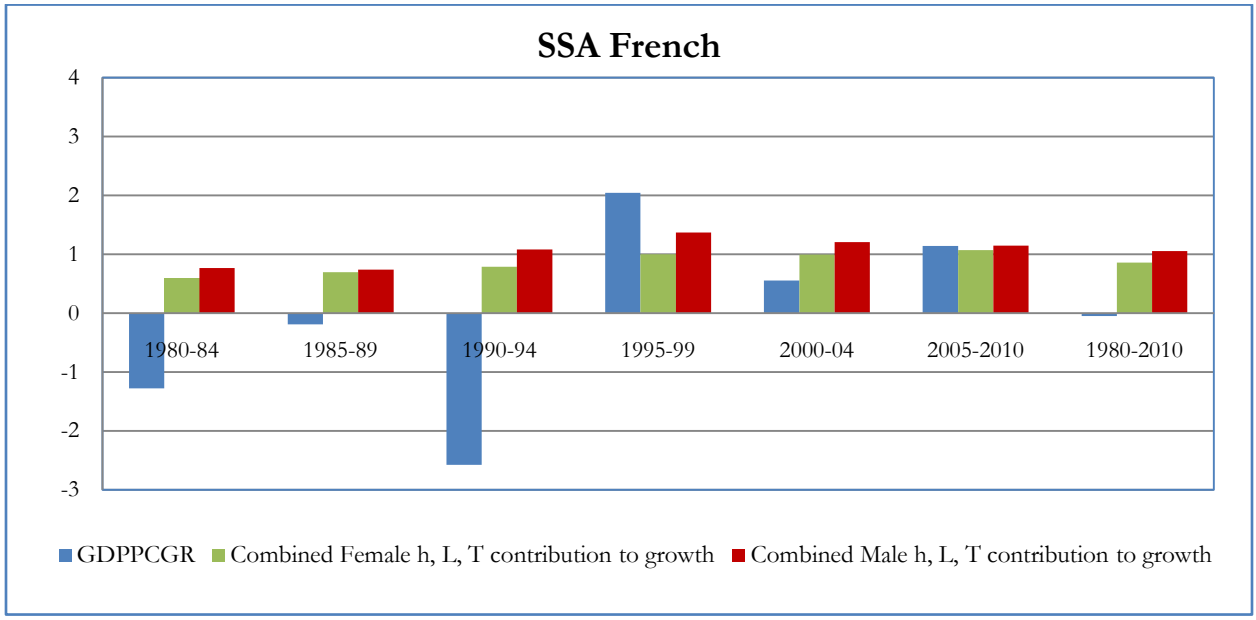
At the same time, the relative contributions to growth are robust against changes in the weights θ and ϑ associated with labor force participation and human capital, respectively. When the share of these coefficients is allowed to vary over time the contribution of female and male labor force to growth remains positive (see Figure 4 in the Annex). However, the relative contribution of male labor force participation to growth overtakes the female's contribution when the coefficient of θ is allowed to decrease from 0.9 to 0.5 (and conversely the coefficient of $(1-\vartheta)$ to increase to 0.5 from 0.1) at gender parity.

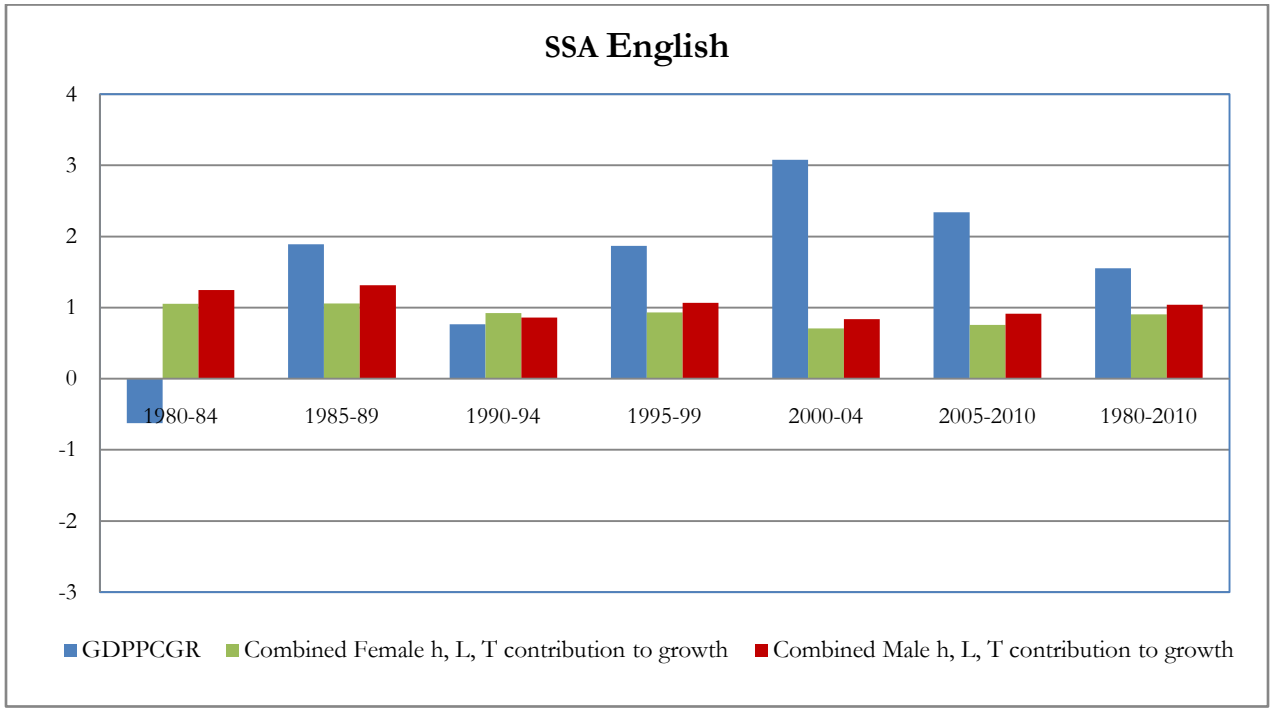
At the same time, the relative contributions of labor force participation along the subset of English-speaking and French-speaking countries shows noticeable differences within and between country groupings (see Figure 5 in the Annex). While the relative contribution of labor force participation to growth is consistently positive irrespective of gender, the relative contribution of labor to growth is slightly larger in the subset of English-speaking countries, especially during output contraction in the 1980s. Still, when other growth-enhancing variables such as human capital endowment and land ownership are taken into account the gender gap in the relative contribution to growth is even larger, both between and within country groupings (see Figure 4 below).

While the combined contribution of female-related variables to aggregate growth in English-speaking countries trumps the one registered by females in French-speaking countries, the combined contribution of males based on the three growth-enhancing variables (land ownership, human capital endowment and labor force participation) is superior to that of females in both English and French-speaking countries. This larger contribution of women to economic growth in the subset of English-

speaking countries may also reflect the much stronger growth performance enjoyed by countries in this group, hence, the possibility of endogeneity.

Figure 4 – Baseline: Total contributions of males and females to growth in English and French SSA

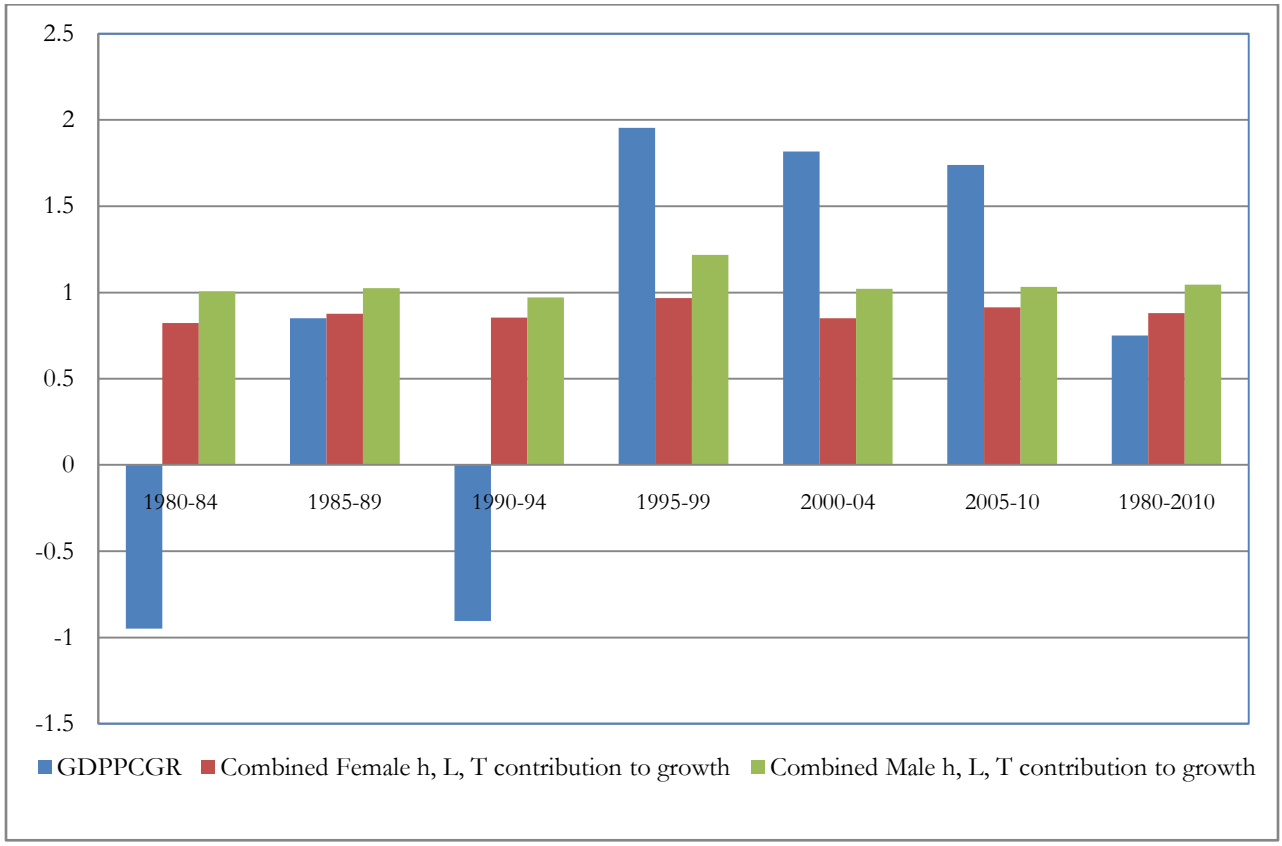




The results are also consistent when estimates of the combined contribution of growth-enhancing variables to change in aggregate GDP do not control for possible colonial effects. Figure 5 below shows the long-term trend of combined contribution of human capital, land and labor force participation to aggregate economic growth across gender and over the reference period for the region as a whole. Men enjoy a higher relative contribution to aggregate growth. Interestingly, the results hold even though the base line scenario assumes that there is no gender gap in returns to education.[27]

The positive and excess contribution of men to aggregate growth over the reference period reflects the larger effects of land ownership over labor input and human capital (proxy for skilled workers). The much lower contribution of human capital is in line with mixed TFP effects and reflects the poor level of technological endowment and inability of countries to draw on increased technical efficiency and technological change to enhance the productivity of factor inputs. However, the outcome also reflects the modeling specifications. The base case scenario assumes gender bias in access to land, with limited female ownership.

Figure 5 - Baseline case: Total contributions of males and females to growth in SSA



[27] The much higher relative contribution of land owned by men to overall growth is the consequence of modeling specifications. The relative contribution of female and male land ownership to growth is exactly equal when the model assumes an equitable distribution of land across gender($\beta = \delta$).

V Conclusion

The World Bank World Development Report on *Gender Equality and Development* underlines that gender equality is not only a core development objective in its own right, but also smart economics [WDR (2012)]. Through improved allocative efficiency, gender equality is likely to enhance the productivity of factors and improve other development outcomes, including human development indicators and prospects for the next generation. This main finding of the WDR is consistent with the emerging global consensus on the potential benefits of gender equality for growth and economic development at the policy and analytical level [Seguino (2010), Lagerlof (2003)].

Despite emerging consensus on the causal relationship between gender equality and growth, very little has been done to quantify the expected contribution of women to economic growth. This paper attempted to fill that gap by drawing on a growth accounting framework to estimate the relative contribution of women to economic growth in SSA. The analysis was undertaken under the assumption of loosening traditional norms and colonial constructs, most notably illustrated by the reduction of gender gaps in education and increasing rates of female labor force participation in recent years.

Empirical results highlight a positive contribution of women to growth in the region, owing in a large part to the positive contribution of human capital endowments and female labor force participation rates. Female labor force participation accounts for a relatively large share of aggregate GDP growth, with the average contribution exceeding one full percentage point in numerous countries. Furthermore, the contribution of this variable is consistently positive, both during economic contraction and during growth spurts. For instance, estimates place its average contribution to aggregate growth at about 32% in the post-HIPC growth rebound (between 2000 and 2004).

At the same time, the positive contribution of female labor force participation to aggregate growth is achieved notwithstanding the fact that the gender gap in labor force participation (either as a result of persistent occupational job segregation or educational gender gap) remains important and the contribution of women to growth through informal sector and home production is not fully accounted for in national income and product accounts. These empirical results suggest that the relative contribution of women to aggregate GDP growth could be even more substantial.

The results are also consistent when the study controls for possible colonial effects, contrasting the contribution of women to growth in the former English and French colonies. Irrespective of the colonial origins of underpinning institutions, the contribution of women to aggregate GDP growth is positive in both subsets of former French and English colonies. However, women enjoy a much higher relative contribution to growth in the latter group of countries, but this is achieved on the crest of the country's stronger growth performance.

On average, English-speaking countries recorded stronger economic growth rates than their French-speaking counterparts over the reference period. The stronger per capita income growth enjoyed by these countries resulted in widening income gaps compared with the subset of French-speaking countries. In this regard and to the extent that endogeneity cannot be ruled out, the relatively larger

contribution of women to economic growth in the subset of English-speaking countries may also be partly due to growth effects, assuming that the loosening of traditional norms and colonial constructs has followed a uniform distribution across the region.

Despite the relatively strong and positive contribution of female labor to growth in the region, a significant share of the growth in output is not fully accounted for by changes in factor inputs. Estimates of the TFP contribution to aggregate growth are rather high. Though the magnitude of the TFP probably reflects the increase in the productivity of factors, it is not clear how that increase is distributed across gender and the extent to which it may be affecting the relative contribution of women and men to growth. Future research would investigate the effects of increased factor productivity on female contribution to growth.

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Annex

Figure A1: Educational gender gap (years of schooling) in East Asia and Sub-Saharan Africa

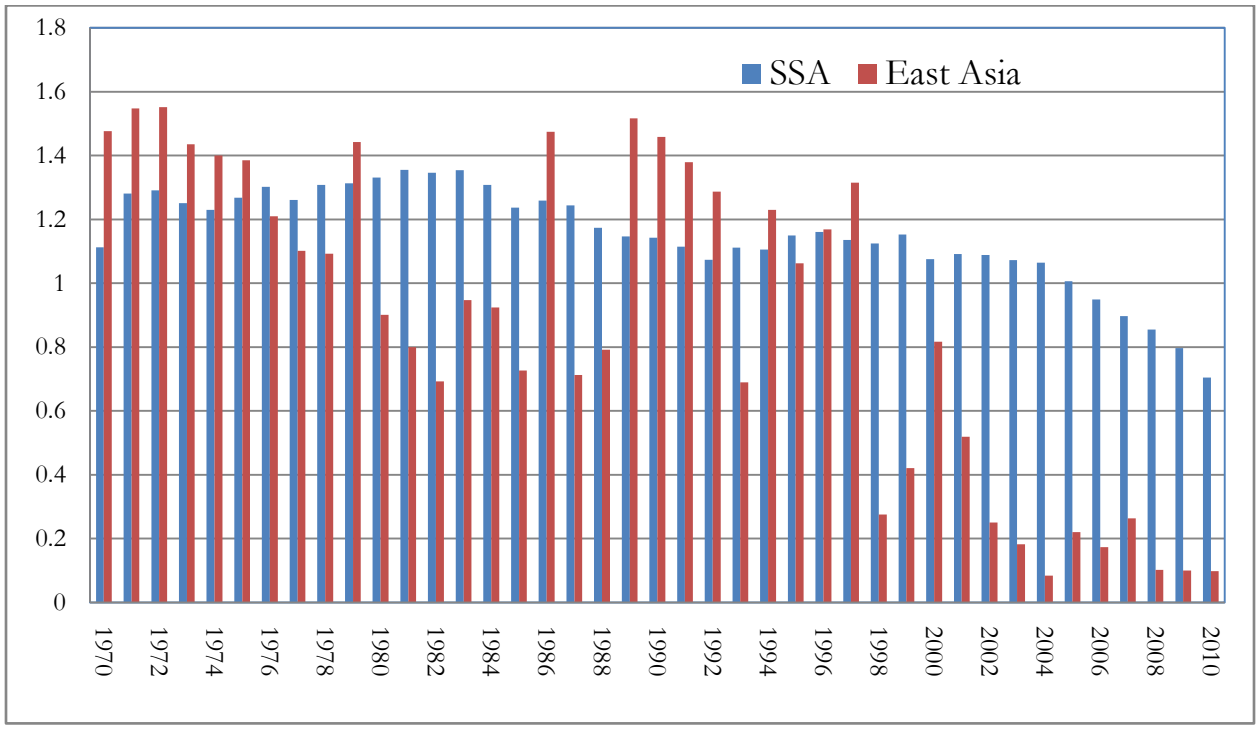


Figure A2: Trend labor force participation rates in Sub-Saharan Africa

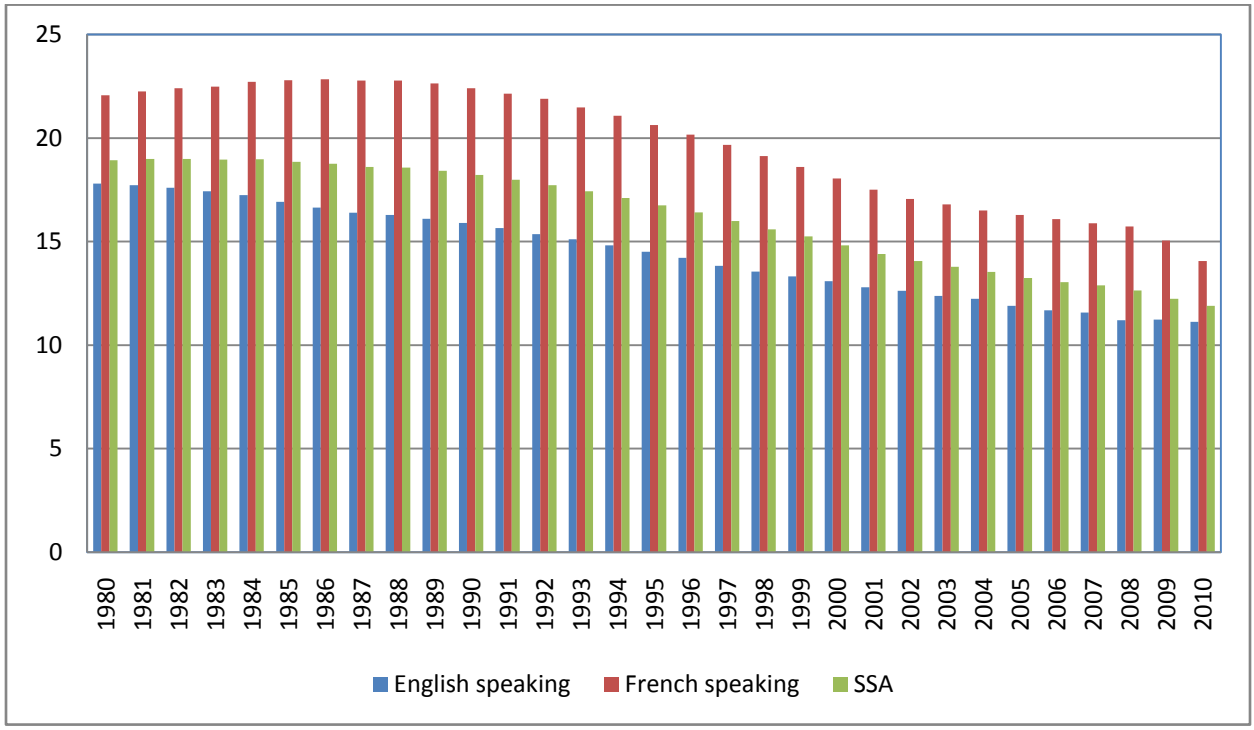
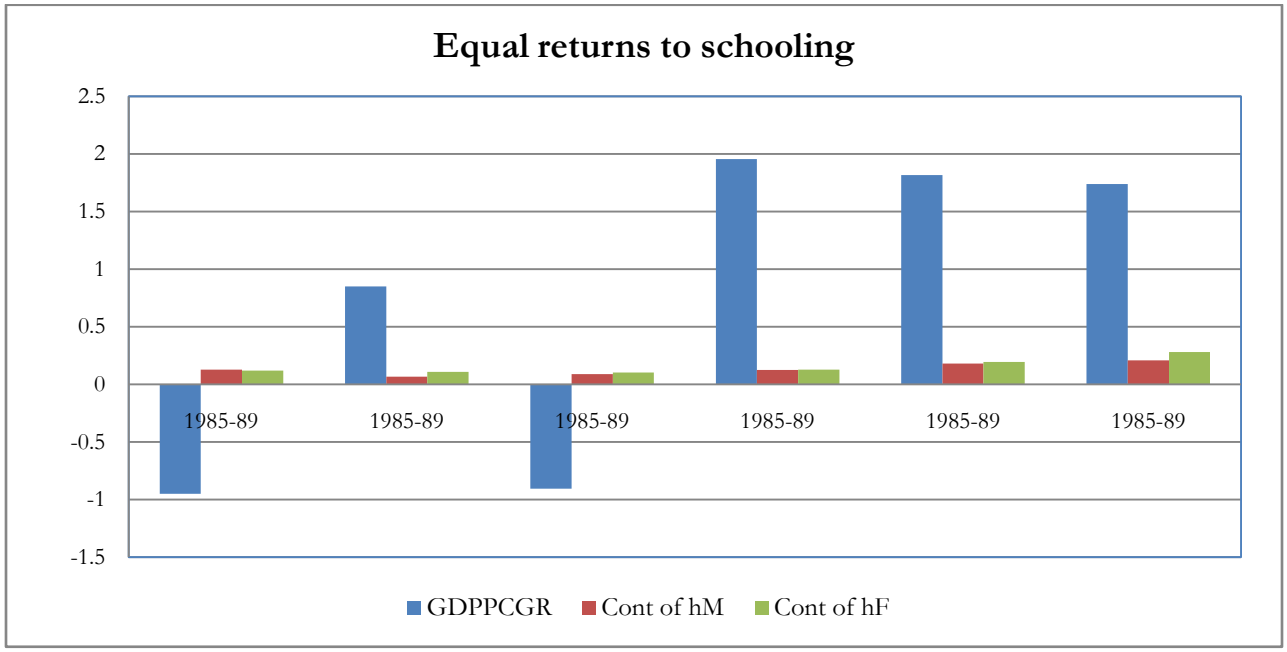


Figure A3: Contributions of male human capital (hM) and female human capital (hF) to growth with changing returns to schooling



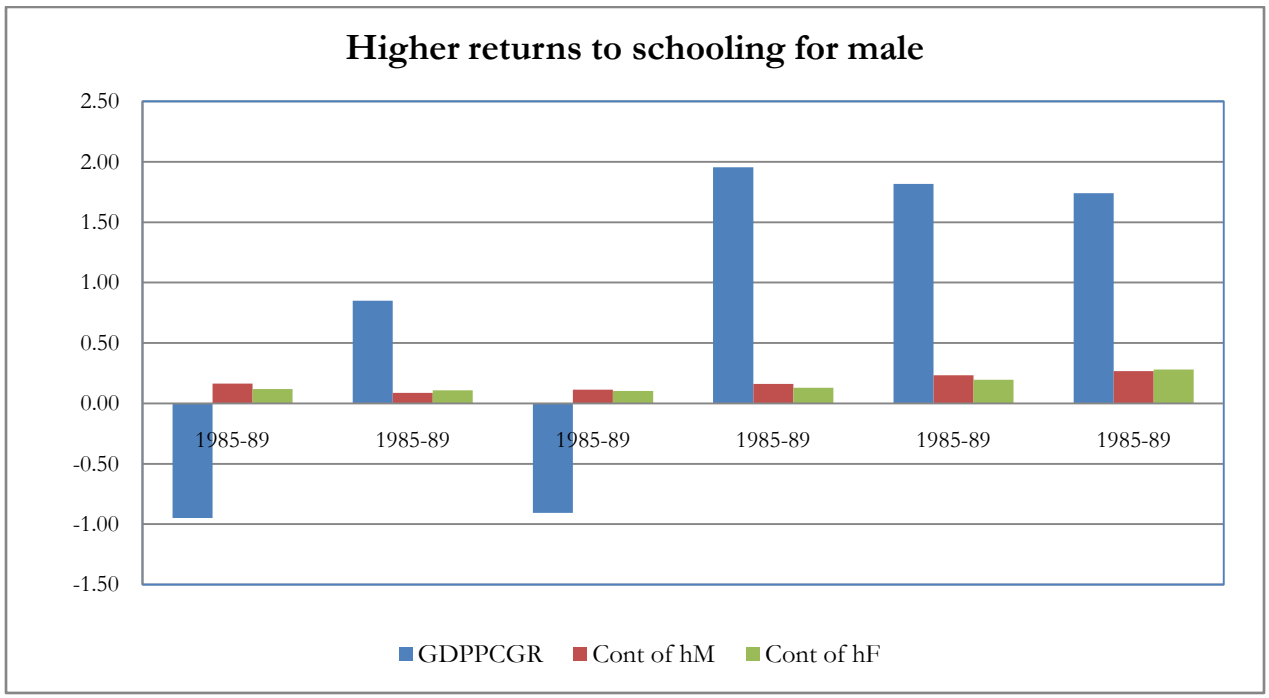


Figure A4: Contribution of male and female labor force to growth (the coefficient of theta is decreasing from 0.9 to 0.5 for males and the coefficient of (1-v) is increasing from 0.1 to 0.5)

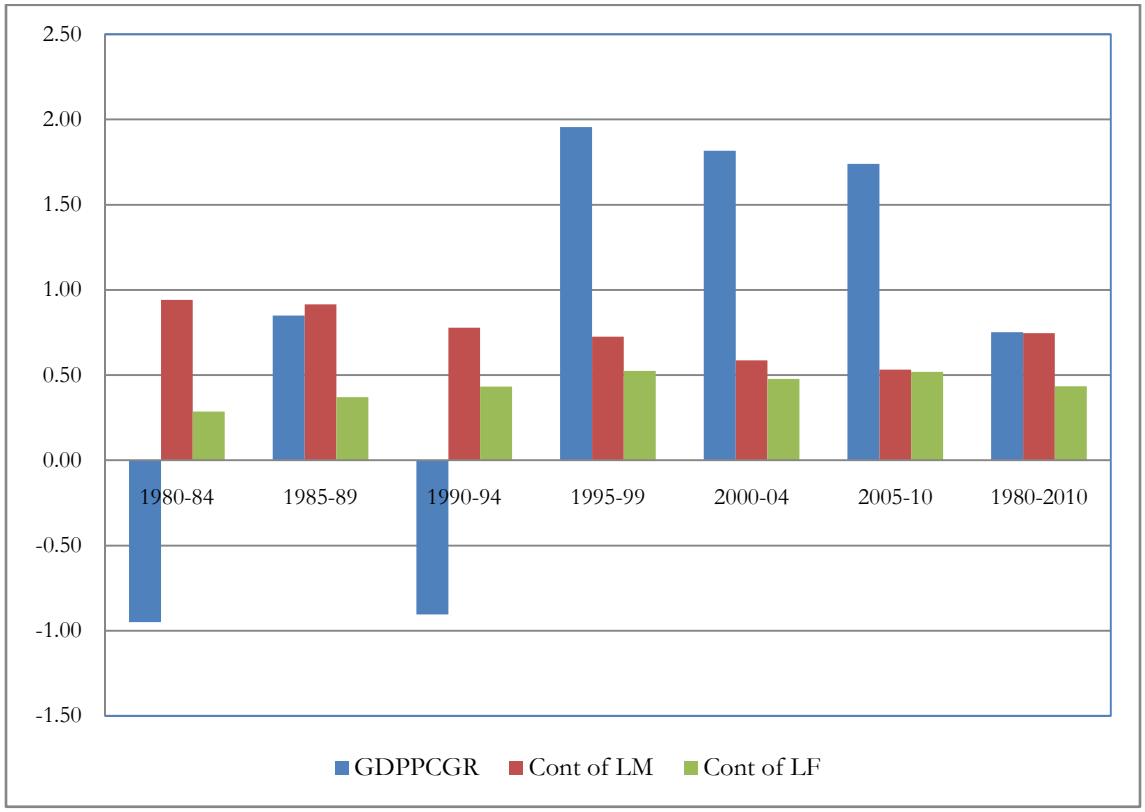
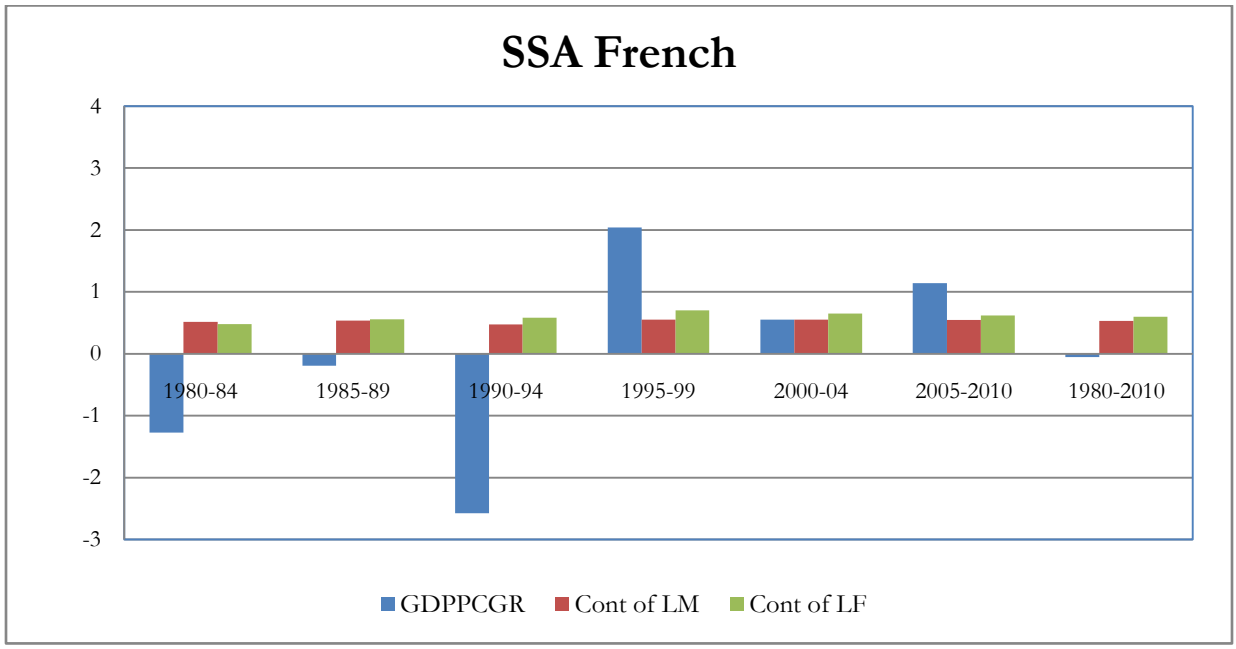


Figure A5: Baseline case: Contributions of male and female labor force to growth in SSA



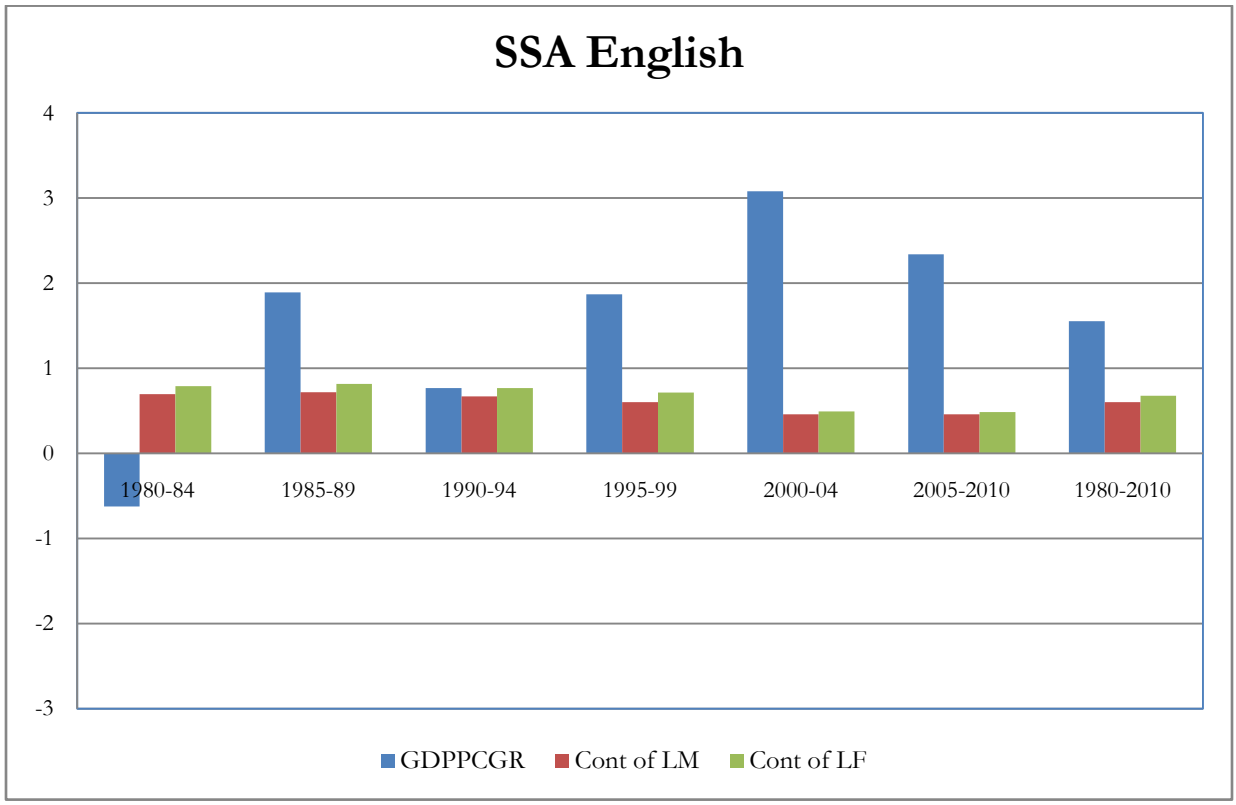


TABLE 1 ANNEX - Growth and Gender

	GDP per capita (constant in 2000 US$)		Growth rate of GDP per capita between 1970 and 2010 (%)	Growth of GDP per capita (%)			Labor force participation (average 1980-2010)		Labor force participation (growth between 1980-2010)		Labor force participation (GAP in 1980)	Labor force participation (GAP in 2010)	Years of schooling (average 1970-2010)		Years of schooling in 1970		Years of schooling in 1970		Years of schooling (GAP in 1970)	Years of schooling (GAP in 2010)	% reduction in GAP between 1970 and 2010
	1970	2010		1970-2010 (avg)	1970	2010	Female	Male	Female	Male			Female	Male	Female	Male	Female	Male			
English spoken																					
Botswana	410	4188	922.44	6.30	13.45	5.87	71.09	82.36	14.09	-1.32	15.20	4.52	9.63	9.09	4.85	4.45	12.84	12.90	-0.40	0.06	115.54
Ghana	294	358	21.76	0.76	7.23	5.22	75.75	74.76	8.47	2.57	1.15	-3.11	6.89	8.43	5.89	8.07	10.29	10.85	2.18	0.56	74.45
Kenya	291	467	60.55	1.05	-7.92	2.81	79.25	89.94	1.72	-2.63	12.17	8.41	8.60	9.57	7.81	8.84	10.88	11.28	1.03	0.40	61.64
Lesotho	179	482	169.35	5.08	0.10	2.54	74.59	82.17	3.74	-6.66	10.04	1.67	9.97	8.19	8.66	5.95	10.84	9.65	-2.71	-1.19	56.07
Malawi	121	184	51.88	1.10	-2.33	3.80	82.17	80.84	-11.73	-14.11	0.26	-1.93	7.13	8.15	3.77	5.87	8.82	9.01	2.10	0.20	90.65
Mauritius	1706	5175	218.03	3.52	4.83	3.68	41.54	84.39	34.12	-8.70	53.63	34.50	10.64	10.84	7.74	8.54	14.09	13.36	0.80	-0.73	191.71
Nigeria	345	540	56.58	1.78	22.10	5.17	39.89	76.39	7.99	-3.74	38.84	32.84	6.98	8.87	6.30	8.24	8.95	10.76	1.94	1.80	6.94
South Africa	3104	3745	20.66	0.56	2.99	1.47	42.35	64.07	52.47	3.42	30.95	15.60	11.86	11.81	9.32	10.04	13.99	13.50	0.72	-0.49	168.04
Swaziland	577	1556	169.81	2.70	10.55	0.48	50.06	80.39	16.82	-9.00	34.91	19.28	8.76	9.36	6.24	7.12	10.42	11.14	0.88	0.72	17.71
Tanzania	292	456	56.07	2.07	0.60	3.92	92.09	91.73	0.19	-1.08	0.41	-0.76	5.75	6.25	1.96	3.12	9.17	9.29	1.16	0.12	89.73
Uganda	188	377	100.96	2.57	2.55	1.86	84.68	91.88	-4.03	-1.08	6.05	8.52	5.99	7.10	2.18	3.93	11.13	10.93	1.75	-0.20	111.33
Zambia	576	432	-24.97	-0.58	1.44	5.92	64.31	78.79	3.08	-0.13	17.84	15.84	6.96	8.04	6.13	8.03	6.76	6.45	1.90	-0.31	116.36
Zimbabwe	522	325	-37.75	-0.49	18.56	8.16	69.45	78.89	-7.05	-5.40	9.95	10.57	9.80	10.46	10.03	10.00	8.89	8.89	-0.03	0.00	87.80
SSA English	**662**	**1407**	**137.34**	**2.03**	**5.71**	**3.92**	**66.71**	**81.28**	**9.22**	**-3.68**	**17.80**	**11.23**	**8.38**	**8.93**	**6.22**	**7.09**	**10.54**	**10.62**	**0.87**	**0.07**	**91.74**
French spoken																					
Benin	292	377	29.17	0.67	0.10	0.11	65.48	85.26	14.18	-12.33	26.19	6.25	4.44	7.67	1.58	3.50	8.57	11.57	1.92	3.00	-56.65
Burkina Faso	137	276	101.71	1.73	-1.83	6.03	81.54	92.09	0.80	-2.04	11.84	9.29	2.19	3.17	0.59	1.05	5.91	6.98	0.46	1.07	-134.25
Burundi	127	115	-8.93	0.34	19.66	1.27	96.79	90.01	-0.83	-1.67	-7.46	-8.15	3.61	4.67	1.31	2.79	8.21	8.69	1.47	0.48	67.12
Cameroon	493	709	43.95	1.08	0.49	0.97	53.51	83.32	7.05	-2.73	30.90	24.84	6.36	8.25	4.94	7.13	9.67	11.15	2.19	1.48	32.27
Congo, Rep.	704	1253	78.08	1.67	3.26	6.02	64.83	84.46	5.17	-2.79	21.81	16.10	9.96	11.90	6.73	9.43	11.12	11.57	2.71	0.45	83.19
Cote d'Ivoire	853	591	-30.70	-0.67	5.82	0.99	48.34	85.74	27.08	-7.61	46.84	28.52	4.77	7.07	2.99	5.89	6.54	7.85	2.91	1.32	54.69
Gabon	3253	4176	28.38	1.31	7.00	3.78	71.85	84.81	0.96	-2.01	9.70	7.28	11.49	12.70	9.50	11.42	11.46	12.27	1.91	0.82	57.42
Madagascar	429	243	-43.38	-1.22	2.55	-1.33	88.75	89.76	1.57	-0.22	1.57	-0.01	6.69	7.46	5.51	6.61	10.53	11.27	1.10	0.74	32.58
Mali	172	270	56.80	1.33	4.42	1.37	39.13	69.88	-2.86	-2.29	29.23	28.79	2.75	4.26	1.12	2.27	7.36	9.39	1.15	2.03	-77.28
Niger	307	180	-41.40	-1.11	0.02	5.02	33.32	89.61	57.17	-3.61	65.38	47.26	1.68	2.71	0.57	1.07	4.29	5.55	0.50	1.26	-153.39
Rwanda	216	338	56.56	1.83	2.79	4.34	90.63	87.99	0.03	-1.71	-3.65	-5.18	6.05	6.53	3.66	4.66	11.30	11.41	1.00	0.11	89.40
Senegal	553	561	1.33	0.22	5.15	1.40	65.70	90.64	2.86	-0.99	24.67	21.89	3.99	5.43	2.35	4.16	7.37	8.10	1.81	0.72	60.18
Togo	303	285	-5.87	-0.02	-1.32	1.21	62.15	87.51	16.00	-2.04	29.84	18.71	5.89	10.04	3.11	7.18	8.59	11.18	4.07	2.59	36.49
SSA French	**603**	**721**	**20.44**	**0.55**	**3.70**	**2.40**	**66.31**	**86.24**	**9.94**	**-3.24**	**22.07**	**15.04**	**5.38**	**7.07**	**3.38**	**5.17**	**8.53**	**9.77**	**1.78**	**1.24**	**30.68**
Other																					
Ethiopia	142	221	55.71	1.78	-1.89	7.80	78.18	91.82	12.52	-0.76	15.26	5.00	2.96	4.40	0.66	1.57	8.22	9.37	0.91	1.15	-27.35
Mozambique	203	390	92.26	2.41	2.50	4.76	91.37	87.67	-1.13	-1.93	-3.37	-4.03	4.00	5.58	1.68	3.05	8.97	10.45	1.37	1.48	-8.09
SSA	**602**	**1013**	**78.89**	**1.34**	**4.41**	**3.37**	**67.73**	**84.16**	**9.32**	**-3.32**	**19.00**	**12.29**	**6.65**	**7.80**	**4.56**	**5.87**	**9.48**	**10.17**	**1.31**	**0.70**	**46.87**
MENA	**926**	**2677**	**232.78**	**1.61**	**-3.37**	**1.55**	**30.02**	**80.33**	**56.98**	**1.52**	**55.81**	**45.68**	**8.82**	**10.13**	**6.09**	**9.04**	**11.88**	**11.58**	**2.76**	**-0.23**	**108.17**
East Asia	**1557**	**9889**	**535.17**	**4.09**	**5.99**	**6.97**	**54.24**	**82.86**	**9.71**	**-1.23**	**30.68**	**25.83**	**11.53**	**12.20**	**5.47**	**6.95**	**13.82**	**14.37**	**0.77**	**0.09**	**88.76**

Table 2 Annex - Growth Accounting Estimate (Baseline scenario)

		GDPPCGR	Cont of A	Cont of K/L	Cont of TM	Cont of TF	Cont of hM	Cont of hF	Cont of LM	Cont of LF	Cont of L	Cont of (L/WP)	Cont of (WP/POP)
FRENCH													
Benin	1980-2010	0.83	-0.47	1.15	0.48	0.12	0.23	0.23	0.53	0.61	-2.19	-0.01	0.15
	1980-84	1.14	-1.19	2.57	0.32	0.08	0.31	0.16	0.50	0.38	-1.73	-0.11	-0.15
	1985-89	-1.03	0.94	-1.31	0.17	0.04	0.02	0.08	0.53	0.44	-1.89	-0.01	-0.05
	1990-94	0.53	0.71	-0.12	0.27	0.07	0.19	0.22	0.69	0.71	-2.68	0.11	0.37
	1995-99	2.10	-1.77	2.25	1.72	0.43	0.22	0.19	0.33	0.75	-2.00	-0.08	0.05
	2000-04	1.25	-2.48	2.38	1.00	0.25	0.46	0.45	0.51	0.74	-2.38	-0.03	0.34
	2005-10	1.01	0.95	1.13	-0.61	-0.15	0.17	0.30	0.60	0.65	-2.45	0.08	0.33
Burkina Faso	1980-2010	1.87	0.82	0.54	0.71	0.18	0.24	0.22	0.54	0.53	-1.97	-0.02	0.08
	1980-84	0.58	0.44	0.52	0.39	0.10	0.18	0.10	0.37	0.39	-1.42	-0.08	-0.41
	1985-89	2.13	-0.39	1.79	1.05	0.26	0.25	0.15	0.43	0.51	-1.71	-0.03	-0.17
	1990-94	-0.06	0.08	0.57	-0.25	-0.06	0.20	0.13	0.56	0.56	-2.06	-0.02	0.22
	1995-99	4.60	3.54	0.51	0.82	0.20	0.09	0.13	0.62	0.55	-2.10	-0.10	0.34
	2000-04	2.21	1.64	-0.50	1.10	0.27	0.18	0.22	0.63	0.60	-2.26	0.05	0.29
	2005-10	1.74	-0.38	0.36	1.13	0.28	0.56	0.57	0.65	0.60	-2.29	0.05	0.22
Burundi	1980-2010	-0.48	0.85	-0.38	-0.04	-0.01	0.12	0.12	0.22	0.20	-1.96	-0.04	0.44
	1980-84	0.48	-0.63	2.36	0.00	0.00	0.18	0.12	0.31	0.26	-2.65	0.03	0.49
	1985-89	2.22	3.30	0.27	0.00	0.00	0.17	0.18	0.25	0.21	-2.10	0.06	-0.13
	1990-94	-2.02	0.24	-1.09	0.00	0.00	0.04	0.03	0.12	0.11	-1.03	0.04	-0.48
	1995-99	-3.59	-0.79	-2.58	0.28	0.07	0.03	0.03	0.02	0.05	-0.36	-0.06	-0.28
	2000-04	-0.44	1.33	-1.57	0.23	0.06	0.11	0.09	0.27	0.26	-2.45	-0.25	1.48
	2005-10	0.48	1.66	0.32	-0.78	-0.19	0.21	0.28	0.35	0.33	-3.15	-0.10	1.56
Cameroon	1980-2010	0.39	0.40	0.05	0.01	0.00	0.19	0.20	0.62	0.67	-2.01	0.03	0.24
	1980-84	6.63	4.07	3.90	0.00	0.00	0.03	0.03	0.56	0.33	-1.52	-0.50	-0.27
	1985-89	-2.30	-1.82	0.18	0.02	0.01	0.03	0.03	0.67	0.66	-2.09	0.03	-0.02
	1990-94	-6.37	-3.94	-2.29	0.01	0.00	0.03	0.03	0.70	0.85	-2.36	0.34	0.25
	1995-99	2.09	3.56	-1.57	0.00	0.00	0.06	0.17	0.62	0.77	-2.14	0.02	0.59
	2000-04	1.76	0.77	0.03	0.00	0.00	0.53	0.53	0.60	0.71	-2.00	0.10	0.49
	2005-10	0.53	-0.24	0.03	0.00	0.00	0.43	0.44	0.58	0.69	-1.96	0.17	0.39
Cote d'Ivoire	1980-2010	-1.58	-0.21	-1.45	0.30	0.07	0.08	0.14	0.59	0.91	-2.27	0.05	0.21
	1980-84	-4.89	-3.32	-2.16	0.91	0.23	0.24	0.20	0.96	1.06	-3.17	0.23	-0.07
	1985-89	-1.35	1.47	-2.54	0.22	0.05	0.05	0.15	0.77	1.04	-2.77	0.03	0.18
	1990-94	-3.35	-1.85	-2.54	0.95	0.24	0.05	0.15	0.66	1.21	-2.72	-0.13	0.62
	1995-99	2.66	3.28	0.05	-0.29	-0.07	0.08	-0.09	0.46	1.04	-2.17	-0.13	0.50
	2000-04	-2.70	-1.42	-1.12	0.01	0.00	0.01	0.17	0.33	0.55	-1.35	0.18	-0.06
	2005-10	0.18	0.58	-0.39	0.00	0.00	0.05	0.23	0.36	0.56	-1.45	0.14	0.10
Gabon	1980-2010	-0.72	0.08	-0.75	0.02	0.01	-0.06	-0.01	0.91	0.89	-1.99	-0.03	0.19
	1980-84	0.71	1.26	0.48	0.00	0.00	0.10	0.10	0.78	0.44	-1.41	-0.29	-0.74
	1985-89	-2.86	-0.72	-1.29	0.00	0.00	-0.23	0.13	0.89	0.71	-1.80	-0.12	-0.44
	1990-94	-0.07	2.30	-1.79	0.02	0.01	0.02	-0.11	0.99	0.82	-2.01	-0.18	-0.14
	1995-99	-0.92	-0.74	-0.38	0.12	0.03	-0.18	-0.06	0.97	1.04	-2.18	0.04	0.43
	2000-04	-1.39	-0.85	-1.29	0.00	0.00	-0.09	-0.10	0.95	1.14	-2.26	0.20	0.91
	2005-10	0.22	-0.75	-0.20	0.00	0.00	0.02	0.00	0.88	1.18	-2.25	0.20	1.14

Note: In the baseline scenario, the following parameter values are used: $\alpha = 0.2$; $\beta = 0.2$*share of Agriculture value added/GDP; $\delta = 0.8$*share of Agriculture value added/GDP; $\theta = 0.5 *(1-\alpha-\beta-\delta)$; $(1-\vartheta) = (1-\alpha-\beta-\delta-\theta)=0.5*(1-\alpha-\beta-\delta)$.

Table 2 Annex - Growth Accounting Estimate (Baseline scenario) - (cont'd)

		GDPPCGR	Cont of A	Cont of K/L	Cont of TM	Cont of TF	Cont of hM	Cont of hF	Cont of LM	Cont of LF	Cont of L	Cont of (L/WP)	Cont of (WP/POP)
FRENCH													
Madagascar	1980-2010	-1.31	-1.45	0.30	0.13	0.03	0.18	0.21	0.62	0.65	-2.22	0.02	0.20
	1980-84	-4.68	-3.37	-1.26	0.19	0.05	0.07	0.07	0.57	0.65	-2.13	0.06	0.43
	1985-89	-0.46	-0.14	0.10	0.16	0.04	-0.06	0.13	0.58	0.64	-2.11	-0.05	0.26
	1990-94	-2.95	-1.99	-0.43	0.33	0.08	-0.09	-0.10	0.63	0.67	-2.27	0.05	0.15
	1995-99	0.04	1.33	-0.15	0.00	0.00	-0.06	-0.04	0.61	0.60	-2.10	0.14	-0.29
	2000-04	-0.47	-1.33	0.89	0.08	0.02	0.42	0.28	0.64	0.66	-2.28	0.01	0.14
	2005-10	0.66	-3.18	2.63	0.00	0.00	0.83	0.95	0.67	0.71	-2.41	-0.07	0.52
Mali	1980-2010	0.80	-0.96	0.63	1.69	0.42	0.17	0.15	0.25	0.25	-1.57	-0.08	-0.15
	1980-84	-2.00	-1.02	0.32	0.01	0.00	-0.03	-0.01	0.16	0.17	-1.04	-0.10	-0.47
	1985-89	0.37	0.37	1.14	0.15	0.04	0.00	0.02	0.06	0.08	-0.51	-0.22	-0.75
	1990-94	-0.96	-5.29	0.44	3.83	0.96	0.13	0.07	0.28	0.21	-1.56	-0.04	0.00
	1995-99	2.93	0.15	-0.52	3.25	0.81	0.30	0.24	0.32	0.27	-1.85	-0.24	0.20
	2000-04	2.65	0.44	1.78	0.97	0.24	0.29	0.25	0.35	0.37	-2.18	-0.01	0.14
	2005-10	1.83	-0.41	0.60	1.93	0.48	0.33	0.30	0.34	0.40	-2.27	0.11	0.01
Niger	1980-2010	-1.49	-0.43	-0.61	0.46	0.12	0.10	0.09	0.40	0.61	-2.46	0.35	-0.10
	1980-84	-7.44	-4.29	-1.46	-0.38	-0.09	0.05	0.03	0.28	0.47	-1.81	-0.11	-0.14
	1985-89	1.49	3.63	-0.76	-0.13	-0.03	0.05	0.03	0.34	0.43	-1.99	0.05	-0.12
	1990-94	-3.13	-2.82	-2.40	2.26	0.57	0.03	0.02	0.39	0.88	-2.81	0.79	-0.03
	1995-99	0.20	1.15	-0.89	0.54	0.14	0.02	0.07	0.47	0.86	-3.13	1.02	-0.06
	2000-04	-0.69	-0.70	0.91	0.07	0.02	0.22	0.17	0.43	0.59	-2.59	0.36	-0.17
	2005-10	0.62	0.42	0.92	0.41	0.10	0.21	0.20	0.46	0.42	-2.40	-0.03	-0.09
Rwanda	1980-2010	1.50	0.69	0.44	0.68	0.17	0.20	0.22	0.37	0.39	-1.97	-0.02	0.32
	1980-84	-0.86	-1.82	1.11	0.66	0.16	0.22	0.21	0.42	0.38	-2.03	0.09	-0.27
	1985-89	-1.09	0.18	0.00	0.25	0.06	0.07	0.10	0.55	0.52	-2.77	0.13	-0.18
	1990-94	-7.36	-9.40	1.34	-1.20	-0.30	0.06	0.06	-0.63	-0.55	3.04	0.16	0.06
	1995-99	9.50	11.95	-2.10	1.50	0.38	0.05	0.09	0.88	0.96	-4.79	-0.41	1.00
	2000-04	3.80	1.34	0.23	2.03	0.51	0.32	0.35	0.60	0.62	-3.13	-0.27	1.20
	2005-10	4.99	1.90	2.07	0.86	0.22	0.49	0.49	0.41	0.41	-2.13	0.17	0.10
Senegal	1980-2010	0.41	-0.37	0.50	0.12	0.03	0.22	0.28	0.73	0.81	-2.11	0.00	0.20
	1980-84	0.01	-0.32	0.79	-0.01	0.00	0.26	0.19	0.65	0.57	-1.72	-0.13	-0.26
	1985-89	0.14	0.32	0.09	-0.02	0.00	0.09	0.18	0.75	0.84	-2.18	-0.04	0.11
	1990-94	-2.05	-1.34	-0.64	-0.05	-0.01	0.05	0.18	0.82	0.91	-2.35	0.04	0.35
	1995-99	1.88	2.19	-0.22	-0.03	-0.01	0.05	0.18	0.67	0.82	-2.03	-0.02	0.29
	2000-04	1.47	-0.36	1.25	0.03	0.01	0.37	0.30	0.74	0.88	-2.20	0.07	0.38
	2005-10	1.00	-2.72	1.74	0.81	0.20	0.47	0.65	0.75	0.87	-2.18	0.09	0.32
Togo	1980-2010	-0.84	0.48	-0.92	0.12	0.03	-0.07	0.07	0.57	0.67	-2.36	0.18	0.39
	1980-84	-4.98	-1.19	-1.60	0.17	0.04	-0.90	-0.41	0.63	0.65	-2.47	0.16	-0.08
	1985-89	0.47	1.74	-0.47	0.14	0.03	-0.01	-0.02	0.60	0.64	-2.39	0.02	0.21
	1990-94	-3.14	-1.72	-1.80	0.39	0.10	0.02	0.09	0.47	0.62	-2.04	0.29	0.45
	1995-99	3.01	3.00	-1.31	0.73	0.18	0.54	0.51	0.64	0.75	-2.67	0.07	0.57
	2000-04	-0.80	0.33	-0.38	-0.41	-0.10	-0.07	0.14	0.57	0.70	-2.41	0.27	0.57
	2005-10	0.40	0.74	0.04	-0.30	-0.07	0.00	0.13	0.51	0.64	-2.18	0.28	0.62

Table 2 Annex - Growth Accounting Estimate (Baseline scenario) - (cont'd)

		GDPPCGR	Cont of A	Cont of K/L	Cont of TM	Cont of TF	Cont of hM	Cont of hF	Cont of LM	Cont of LF	Cont of L	Cont of (L/WP)	Cont of (WP/POP)
ENGLISH													
Botswana	1980-2010	4.50	1.67	1.40	0.00	0.00	0.45	0.34	1.03	1.07	-2.36	0.19	0.72
	1980-84	6.96	4.04	2.38	0.01	0.00	0.56	0.32	1.18	0.94	-2.37	-0.16	0.06
	1985-89	8.44	5.61	1.52	0.03	0.01	0.66	0.47	1.17	1.12	-2.60	0.05	0.40
	1990-94	1.61	-2.26	1.88	0.11	0.03	0.41	0.34	1.24	1.46	-2.98	0.31	1.07
	1995-99	4.80	2.25	0.76	-0.54	-0.14	0.65	0.59	1.10	1.28	-2.67	0.32	1.20
	2000-04	4.68	1.57	1.45	0.25	0.06	0.17	0.22	0.77	0.85	-1.85	0.27	0.91
	2005-10	0.54	-1.18	0.40	0.13	0.03	0.23	0.10	0.73	0.77	-1.71	0.36	0.66
Ghana	1980-2010	1.05	-0.72	1.15	1.14	0.28	0.07	0.11	0.38	0.40	-2.34	0.18	0.38
	1980-84	-4.78	-2.38	-3.53	1.86	0.47	0.05	0.07	0.42	0.47	-2.61	0.15	0.25
	1985-89	2.17	0.84	1.40	0.93	0.23	-0.02	0.04	0.36	0.40	-2.28	-0.06	0.34
	1990-94	1.25	-1.89	3.36	0.56	0.14	-0.02	0.04	0.41	0.43	-2.48	0.29	0.41
	1995-99	1.87	-1.66	1.07	2.46	0.62	-0.03	0.00	0.45	0.40	-2.53	0.57	0.52
	2000-04	2.10	0.92	1.50	0.30	0.07	0.05	0.09	0.34	0.37	-2.12	0.12	0.45
	2005-10	3.71	-0.12	3.07	0.72	0.18	0.40	0.44	0.31	0.35	-2.00	0.03	0.31
Kenya	1980-2010	0.12	0.30	-0.18	0.33	0.08	0.09	0.11	0.70	0.72	-2.53	-0.02	0.52
	1980-84	-1.72	0.65	-1.20	-0.12	-0.03	0.07	0.07	0.76	0.77	-2.74	0.00	0.06
	1985-89	1.93	1.05	-0.67	1.86	0.47	0.07	0.04	0.76	0.80	-2.78	-0.03	0.35
	1990-94	-1.67	-0.20	-1.24	0.20	0.05	0.01	-0.07	0.79	0.82	-2.88	-0.11	0.95
	1995-99	0.20	1.17	0.22	-0.26	-0.06	-0.43	-0.15	0.67	0.69	-2.43	-0.10	0.88
	2000-04	-0.05	-0.90	0.16	0.17	0.04	0.44	0.37	0.64	0.67	-2.34	0.04	0.67
	2005-10	2.02	-0.01	1.67	0.13	0.03	0.39	0.39	0.56	0.57	-2.03	0.09	0.21
Lesotho	1980-2010	5.03	4.21	0.59	0.11	0.03	0.17	0.06	0.52	0.46	-1.47	-0.04	0.38
	1980-84	-0.01	-1.81	1.57	0.09	0.02	0.49	0.21	0.63	0.61	-1.86	0.03	0.01
	1985-89	0.73	-0.28	1.12	0.12	0.03	0.15	0.12	0.56	0.36	-1.38	-0.07	-0.01
	1990-94	3.15	0.55	2.57	0.30	0.07	0.12	-0.11	0.51	0.39	-1.35	-0.14	0.25
	1995-99	1.24	0.93	0.46	0.00	0.00	-0.05	-0.19	0.59	0.62	-1.82	0.05	0.64
	2000-04	22.29	22.97	-1.35	-0.16	-0.04	0.44	0.26	0.39	0.39	-1.17	-0.05	0.60
	2005-10	2.78	2.88	-0.83	0.34	0.09	-0.12	0.06	0.44	0.37	-1.21	-0.03	0.80
Malawi	1980-2010	0.44	1.76	-1.07	0.73	0.18	0.11	0.18	0.40	0.36	-1.77	-0.47	0.04
	1980-84	-1.19	0.76	-1.02	0.63	0.16	-0.12	0.00	0.30	0.29	-1.37	-0.61	-0.21
	1985-89	-3.10	1.06	-1.78	0.46	0.11	0.01	0.12	0.60	0.55	-2.69	-2.03	0.50
	1990-94	-0.27	0.20	-0.67	-0.26	-0.07	0.47	0.57	0.30	0.27	-1.37	-0.11	0.41
	1995-99	4.63	4.28	-2.11	1.64	0.41	0.82	0.68	0.30	0.29	-1.37	0.03	-0.34
	2000-04	-0.81	1.01	-0.85	0.68	0.17	-0.45	-0.24	0.43	0.35	-1.81	0.08	-0.19
	2005-10	3.38	3.23	0.00	1.24	0.31	-0.09	-0.07	0.45	0.42	-2.00	-0.20	0.09
Mauritius	1980-2010	4.05	1.45	1.38	-0.04	-0.01	0.28	0.35	0.36	0.75	-1.16	0.14	0.54
	1980-84	2.98	0.75	0.32	0.00	0.00	0.19	0.12	0.61	1.29	-1.92	0.43	1.20
	1985-89	6.54	1.99	2.84	0.00	0.00	0.28	0.45	0.36	0.86	-1.20	0.47	0.50
	1990-94	4.23	1.24	1.89	0.00	0.00	0.12	0.32	0.50	0.75	-1.38	0.34	0.44
	1995-99	3.71	1.30	1.11	0.00	0.00	0.68	0.41	0.30	0.66	-1.09	0.22	0.13
	2000-04	3.62	2.00	1.01	-0.13	-0.03	0.50	0.35	0.22	0.34	-0.57	-0.44	0.37
	2005-10	3.23	1.44	1.12	-0.12	-0.03	-0.07	0.44	0.17	0.62	-0.78	-0.18	0.62
South Africa	1980-2010	0.23	-1.33	-0.10	0.02	0.00	0.23	0.28	0.88	1.34	-2.26	0.63	0.55
	1980-84	-0.49	-1.86	0.40	-0.01	0.00	0.11	0.23	0.95	1.29	-2.31	0.34	0.37
	1985-89	-0.96	-0.90	-1.27	0.05	0.01	0.11	0.23	0.87	1.44	-2.31	0.35	0.46
	1990-94	-1.87	-4.26	-1.35	0.08	0.02	0.92	0.89	0.88	1.91	-2.74	0.88	0.89
	1995-99	0.27	-1.12	-0.21	0.01	0.00	0.07	0.11	0.94	1.67	-2.68	0.75	0.73
	2000-04	1.90	0.40	0.33	0.00	0.00	0.07	0.11	0.79	1.07	-1.97	0.57	0.52
	2005-10	2.53	-0.24	1.48	-0.02	0.00	0.07	0.11	0.86	0.64	-1.57	0.85	0.36

Table 2 Annex - Growth Accounting Estimate (Baseline scenario) - (cont'd)

		GDPPCGR	Cont of A	Cont of K/L	Cont of TM	Cont of TF	Cont of hM	Cont of hF	Cont of LM	Cont of LF	Cont of L	Cont of (L/WP)	Cont of (WP/POP)
ENGLISH													
Swaziland	1980-2010	2.60	-0.63	2.74	0.02	0.01	0.19	0.15	0.73	0.84	-2.10	0.08	0.58
	1980-84	2.67	-14.21	16.87	-0.02	0.00	0.52	0.39	0.65	0.74	-1.90	-0.26	-0.11
	1985-89	5.63	3.46	2.18	0.41	0.10	0.09	0.09	1.01	1.18	-2.94	-0.28	0.32
	1990-94	3.66	2.58	1.40	-0.22	-0.05	0.09	0.09	0.88	0.54	-1.99	0.24	0.10
	1995-99	1.33	1.63	-0.84	0.00	0.00	-0.08	-0.11	0.77	1.06	-2.43	0.32	1.00
	2000-04	1.07	1.84	-1.70	0.00	0.00	0.06	0.05	0.43	0.64	-1.38	0.13	0.99
	2005-10	1.26	0.94	-1.46	-0.05	-0.01	0.46	0.39	0.61	0.86	-1.96	0.32	1.16
Tanzania	1980-2010			2.32	0.23	0.06	0.06	0.10	0.50	0.49	-2.14	-0.01	0.09
	1980-84			0.00	0.00	0.00	-0.40	0.10	0.53	0.53	-2.28	0.05	0.02
	1985-89	0.60		0.00	0.75	0.19	-0.07	-0.30	0.52	0.51	-2.22	-0.04	0.10
	1990-94	-0.81	-8.77	9.13	0.00	0.00	-0.02	-0.03	0.58	0.58	-2.51	0.00	0.24
	1995-99	1.27	1.58	0.79	-0.10	-0.03	-0.04	-0.02	0.47	0.47	-2.04	-0.02	0.21
	2000-04	3.79	1.68	1.43	0.43	0.11	0.60	0.52	0.44	0.42	-1.85	-0.06	0.07
	2005-10	3.95	1.49	2.59	0.31	0.08	0.29	0.35	0.46	0.43	-1.94	-0.02	-0.09
Uganda	1980-2010	2.29		3.24	0.69	0.17	0.16	0.19	0.35	0.33	-2.20	-0.09	-0.05
	1980-84	-0.46		8.29	1.63	0.41	0.25	0.20	0.33	0.32	-2.10	-0.06	-0.06
	1985-89	-0.46	-3.73	4.61	0.32	0.08	0.01	0.05	0.38	0.38	-2.47	0.00	-0.08
	1990-94	2.55	2.81	1.35	0.09	0.02	0.00	0.07	0.34	0.32	-2.16	-0.10	-0.20
	1995-99	4.53	2.79	2.17	0.06	0.02	0.57	0.55	0.31	0.28	-1.94	-0.15	-0.13
	2000-04	2.75	1.70	0.86	1.22	0.30	0.09	0.18	0.35	0.33	-2.20	-0.10	0.04
	2005-10	4.84	3.16	2.15	0.81	0.20	0.04	0.07	0.36	0.35	-2.33	-0.11	0.12
Zambia	1980-2010	-0.51	0.81	-1.05	0.20	0.05	-0.11	-0.01	0.75	0.75	-2.03	0.05	0.06
	1980-84	-2.94	-0.11	-2.81	-0.02	0.00	0.10	0.12	0.91	1.05	-2.61	0.17	0.27
	1985-89	-0.98	0.16	-2.22	0.81	0.20	0.11	0.14	0.84	0.98	-2.44	0.10	0.32
	1990-94	-3.32	-0.81	-1.93	-0.17	-0.04	-0.18	-0.09	0.73	0.86	-2.14	0.24	0.21
	1995-99	-1.14	0.79	-1.08	0.07	0.02	-0.32	-0.20	0.75	0.72	-1.98	0.08	0.02
	2000-04	2.01	2.01	1.01	-0.01	0.00	-0.18	0.00	0.58	0.42	-1.38	-0.17	-0.26
	2005-10	3.29	2.85	0.72	0.49	0.12	-0.18	0.00	0.68	0.50	-1.62	-0.08	-0.19
Zimbabwe	1980-2010	-1.54	0.69	-2.32	0.25	0.06	-0.11	-0.06	0.61	0.61	-1.60	-0.21	0.56
	1980-84	-0.26	-0.02	-0.84	0.21	0.05	0.51	0.24	1.10	1.19	-3.07	0.01	0.35
	1985-89	0.96	3.93	-3.09	0.20	0.05	-0.21	-0.04	1.18	1.19	-3.14	0.17	0.72
	1990-94	0.31	4.04	-3.33	0.19	0.05	-0.54	-0.38	0.86	0.88	-2.30	0.24	0.61
	1995-99	1.45	4.98	-3.98	0.42	0.10	-0.02	0.01	0.54	0.41	-1.25	-0.64	0.88
	2000-04	-6.96	-4.21	-2.71	0.19	0.05	-0.18	-0.09	0.12	0.04	-0.17	-0.53	0.53
	2005-10	-4.72	-4.59	0.00	0.29	0.07	-0.18	-0.09	-0.17	-0.07	0.31	-0.52	0.24
OTHER													
Mozambique	1980-2010	1.98	-1.80	3.39	0.54	0.14	0.25	0.28	0.37	0.39	-1.49	-0.04	-0.05
	1980-84	-7.97	-19.55	11.07	0.53	0.13	0.31	0.33	0.34	0.37	-1.40	0.16	-0.28
	1985-89	5.36	2.43	3.52	0.51	0.13	-0.29	-0.05	-0.29	-0.04	0.57	-0.23	-0.90
	1990-94	0.36	-0.37	0.88	0.27	0.07	-0.02	-0.05	0.63	0.71	-2.58	0.03	0.80
	1995-99	4.87	2.94	1.16	0.56	0.14	0.48	0.38	0.59	0.54	-2.17	-0.06	0.30
	2000-04	4.34	1.17	2.10	0.86	0.22	0.54	0.57	0.48	0.40	-1.70	-0.08	-0.20
	2005-10	4.95	2.58	1.62	0.53	0.13	0.47	0.50	0.48	0.39	-1.66	-0.09	0.00
Ethiopia	1980-2010	1.40		2.70	0.50	0.13	0.12	0.12	0.25	0.28	-2.26	0.18	0.13
	1980-84	-0.97		10.99	0.00	0.00	0.09	0.09	0.24	0.25	-2.08	0.03	0.01
	1985-89	-0.76	-2.02	3.16	0.00	0.00	-0.05	-0.02	0.26	0.25	-2.20	0.00	-0.16
	1990-94	-2.67	0.33	-0.85	-0.06	-0.01	-0.09	-0.04	0.26	0.25	-2.18	0.05	-0.33
	1995-99	1.69	2.18	0.71	0.06	0.01	0.26	0.14	0.23	0.22	-1.93	-0.06	-0.13
	2000-04	2.81	0.46	0.38	1.97	0.49	0.20	0.20	0.24	0.38	-2.64	0.73	0.39
	2005-10	8.27	5.12	1.83	1.06	0.27	0.29	0.37	0.25	0.34	-2.53	0.31	0.96